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THE OPERATION OF WATER TREATMENT FACILITIES FOR THE METROPOLITAN WASHINGTON AREA

(103-43)

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The Operation of Water Treatment Fa...

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BEFORE THE
SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT
OF THE
COMMITTEE ON
PUBLIC WORKS AND TRANSPORTATION
HOUSE OF REPRESENTATIVES
ONE HUNDRED THIRD CONGRESS
FIRST AND SECOND SESSIONS

DECEMBER 20, 1993 AND JUNE 20, 1994

Printed for the use of the
Committee on Public Works and Transportation



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THE OPERATION OF WATER TREATMENT FACILITIES FOR THE METROPOLITAN WASHINGTON AREA

MONDAY, DECEMBER 20, 1993

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT,
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION,
Washington, DC.

The subcommittee met, pursuant to call, at 9:35 a.m., in room 2167, Rayburn House Office Building, Hon. Eleanor Holmes Norton presiding.

Ms. NORTON. May I say good morning and welcome, residents and participants alike, to this Water Resources and Environment Subcommittee hearing on the problems of the District of Columbia Dalecarlia Water Treatment Plant that resulted in an EPA boil-water recommendation on December 8, 1993.

I want to especially thank subcommittee Chair Doug Applegate, who could not be here today, but with whom I have conferred, and the subcommittee staff for their very helpful assistance. I want to also thank Public Works and Transportation Committee Chairman Norman Mineta for his concern and for the assistance of the Full Committee.

We were fortunate that the water crisis of 12 days ago quickly abated. However, the confidence of the public in the water supply of the District and the immediate region was profoundly shaken.

To fully restore this confidence, two things are necessary: full public disclosure and both corrective and preventative action to assure that there are no similar occurrences in the future.

This hearing seeks the public disclosure to which the public is entitled. Residents know little of the details concerning the immediate events leading up to the boil-water alert, the condition and practices of the Dalecarlia Water Treatment Plant, and what precautions have been taken since or may be needed now.

What we do know is that suddenly on the evening of December 8th, the Environmental Protection Agency issued a boil-water advisory to the 1 million residents of the District of Columbia and the Virginia jurisdictions of Arlington and Falls Church. One hundred homes were affected in Prince George's County, Maryland, but they were not notified until the next day.

The advisory remained in effect until December 11, when two days of tests found water samples taken from the Dalecarlia Plant to be free of the parasites cryptosporidium and giardia.

The advisory was doubly rare. It was the first time any such alert had been issued in this region, and it was only the second time that the EPA had ever issued such an order. The first was last April in Milwaukee when 300,000 people became ill and 40 died because of the presence of cryptosporidium in the water. The boil-water advisory here did not mean that cryptosporidium was present in our water, but the advisory appears to have been warranted because high turbidity was the only indication of the presence of cryptosporidium in the Milwaukee plant.

To date, the EPA does not require that jurisdictions test for cryptosporidium. The 1986 amendments to the Safe Drinking Water Act required the EPA to phase in regulations for water contaminants. Not until March 1994 is the EPA expected to propose an extension of the Surface Water Treatment Rule to include cryptosporidium.

The matters before us today are of obvious concern to the local jurisdictions directly affected. The implications are far broader, however. Next year, the Congress will reauthorize two pieces of legislation that bear directly on the quality of the Nation's drinking water—the Clean Water Act and the Safe Drinking Water Act. We need to look at the turbidity crisis that occurred here this month to see if any changes are necessary in this legislation.

Today, we are embarking on the first oversight in memory of the Dalecarlia Water Treatment Plant. Apparently, because the agencies involved are Federal and the jurisdictions are local, regular oversight does not occur. Conceivably, such oversight might have eliminated the water emergency or assured that all concerned were better prepared for it.

Moreover, the present arrangement is one of the few I have heard of where governments pay for a service, but have had no way to hold accountable the agency that delivers it: in this case, the Army Corps of Engineers. This much I already know; that must change.

The Congress and the Government jurisdictions and agencies have a clear obligation to be entirely candid with the public—not to demoralize residents, but to make them aware that Government will insist that all the facts are disclosed and the problems remedied. Even before this hearing, we moved quickly to meet with the Army Corps of Engineers and the Environmental Protection Agency to assure ourselves that there was no longer an immediate danger to public drinking water. It may be necessary to have another hearing after all of the investigations have been completed to evaluate the final evidence and the plans for improvement.

Secretary of the Army Togo West phoned me directly and subsequently sent me a letter indicating that he would be personally involved in assuring that any necessary changes are made. The Army Corps of Engineers and the Environmental Protection Agency have been forthcoming with information concerning the immediate crisis. However, they have not had an opportunity to be questioned concerning the complete history leading up to the episode and other longer term matters we need to understand in order to evaluate the crisis and offer guidance.

In a very real sense, the agencies responsible for the water supply in the District and the immediate region need this hearing as

much as the public. Drinking water is fundamental, and this is the Nation's Capital, not a developing country.

The anecdotal evidence is that many residents have permanently switched from tap water to bottled water. The Corps and the EPA need to take immediate and visible action to restore complete confidence in the water supply.

Problems connected with the growth and complexity of American society have left the public feeling unprotected in many ways—sometimes in the food that they eat, in the air that they breathe, and now, in the water that they drink. Washington is not Milwaukee, and we are grateful that the advisory turned out to be only precautionary.

We must see that we never come close to a real emergency. A necessary step toward that end is today's hearing.

I would like to turn now to Mr. Petri, a member of the full committee who has also been a member of the Water Resources Subcommittee for many years and has worked on problems of this kind in the District of Columbia and in the Nation as well. Mr. Petri.

Mr. PETRI. Thank you, Madam Chairman. Today the subcommittee meets to review the recent drinking water emergency in the Washington, DC area, with particular focus on the Army Corps of Engineers operation of the Dalecarlia Treatment Plant.

Clean, safe drinking water is one of this Nation's most precious resources. Unfortunately, it is also one we all seem to take for granted, at least until incidents occur like this month's scare over potentially contaminated water in the District of Columbia and Northern Virginia. If the December 8th boil-water recommendation issued to over 1 million people served by the Corps' facility has a silver lining or a bright spot, it is this: It teaches us not to take our water supplies for granted, but rather, to continue to invest in infrastructure and to improve both our monitoring to protect public health and safety, and our ability to communicate possible risks to the public.

The other good news is that no one seems to have gotten sick from the high turbidity and that cryptosporidium, after all was said and done, was not, in fact, present. This is in stark contrast to the other recent incident with which I am very familiar, being from Wisconsin, the drinking water contamination in Milwaukee.

No one, however, should confuse the two incidents. One involved the actual presence of a pathogen and the other did not. Preliminary indications also point to human error as a primary factor for the high turbidity at the Corps' treatment plant.

In any event, this subcommittee has a strong interest in reviewing the status of our water supplies and in overseeing the Corps and the efforts of EPA to protect public health and safety. Lessons learned today should help our committee and the rest of Congress in the coming months, particularly as we review the Clean Water Act and Safe Drinking Water Act proposals.

With that, let me close by welcoming our distinguished witnesses and a special welcome goes to General Genega, the Director of Civil Works at the Corps of Engineers, whose agency is on the frontline in not only running the Capital area's water treatment plant, but also the Nation's largest water resources program. Welcome, General.

Ms. NORTON. Thank you very much, Mr. Petri. With Ms. Byrne's indulgence, I am told that Mr. Moran has to leave very shortly. Mr. Moran is not a member of the subcommittee, but his District was directly affected by this water crisis. We welcome him to make an opening statement.

Mr. MORAN. Thank you, Chairwoman Norton, and I appreciate you having this hearing. I will get back to it just as soon as I can, but there is another meeting I can't get out of.

We have learned some valuable lessons, I think, through this experience. Certainly I want to applaud the Environmental Protection Agency, even though they imposed a tremendous disruption on the daily lives of hundreds of thousands of my constituents, as well as yours, Eleanor. I know that we appreciate their prompt action, and I appreciate Carol Browner calling us immediately.

I also think that the Army Corps of Engineers acted professionally, assumed responsibility and I think reacted immediately, as soon as they had the information that needed to be available to them. I want to recognize the Council of Governments as well who handled tens of thousands of informational calls which certainly soothed the concerns of many of my constituents. But there are three things on which I would like to particularly focus.

One is that we seem to have had ample warning. Back in June, people in Arlington, Virginia, were aware that there was bacteria in the water. In September I understand that there was a violation of EPA standards in that more than 5 percent of the sampling done contained fecal coliform bacteria, and early in November, employees of the Dalecarlia Plant were required to boil the tap water that was coming out of the plant itself. So I would like to understand what response was taken to what seemed to have been red flags on the situation that came months before the crisis that developed.

As it turns out, no lives or even health were endangered, but when you are talking about something as basic as water, I think it is better to be safe than sorry. But we want to find out whether it could have been avoided, and, of course, whether we can prevent it from occurring in the future.

The second thing I want to focus on, and I am sure that the committee will do so in the hearing, is why, when there were exceptionally high turbidity levels on Sunday, December 5, there wasn't more action taken, and then on Monday, December 6, in that 3:00 to 11:00 p.m. shift, it seems as though there needed to be immediate action taken. And it was clear that there was a critical situation that had developed, and yet, that information does not seem to have been adequately communicated to the supervisors in charge.

The third point that I hope we will focus on is that the plant needs about \$100 million in capital improvements over the next five years. Jim Hunter from the Arlington County Board is going to address that. I have a bill that will attempt to address it as well, and I would appreciate some support.

But the problem is that the Army Corps of Engineers can no longer continue to borrow in the way that public utilities can, and so you will have to finance the needed capital improvements, and certainly there is a need of capital improvements at the Dalecarlia Plant when some of that plant dates back to 1926, I understand.

So we are going to need money for capital improvements, but we can't finance it over a five-year basis in the way that the Government generally does. So we really need to have the flexibility to be able to finance in the same way that public utilities do over a 30-year basis. That is only fair to the customers who have to pay the bill, and I think it is only appropriate for the Federal Government.

So those are the areas that I would like to focus on. I appreciate you having the hearing, Madam Chairwoman, and I will rejoin you just as soon as possible.

[Mr. Moran's prepared statement follows:]

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STATEMENT OF REP. JAMES P. MORAN
HEARING OF THE PUBLIC WORKS AND TRANSPORTATION
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

December 20, 1993

Mr. Chairman:

I want to thank you for holding this hearing today and investigating the water crisis that affected residents of Northern Virginia, the District of Columbia, and Prince George's County.

Last week, more than half of the residents in my district, as well as all of D.C. and a small number of Maryland residents, found out what it was like to live without the guarantee of a safe, clean drinking water supply. Residents dependent on tap water for drinking, brushing their teeth, making coffee and most basic activities were forced to rely on bottled and boiled water to get by. Hospitals across the Metropolitan region prepared for an onslaught of patients suffering from intestinal problems caused by cryptosporidium, a microscopic parasite thought to have invaded our water supply. While boiling water and purchasing bottled water was considered an inconvenience for most of us, for many others, including young children, elderly individuals, and those with weakened immune systems it is a matter of life and death.

That is why, while all of us are relieved that this water crisis is over, we must carefully examine the causes of the increased turbidity in our water supply and determine if everything was done to ensure that officials were alerted at the earliest possible time of problems in the water supply. Some reports indicate that workers at the Dalecarlia water treatment plant did not respond promptly to increased turbidity levels. Whatever the case, we must find out what went wrong and ensure that it does not happen again.

Industrial growth and rising populations have made it increasingly necessary for water treatment plants to monitor water closely and ensure that it is safe to drink. Failure to ensure a safe, clean water supply exposes Americans to debilitating, even deadly, diseases. Earlier this year in Milwaukee about 370,000 people fell ill with flulike symptoms as a result of water tainted with cryptosporidium. Sadly, more than 40 AIDS patients with weakened immune systems died as a result of drinking the tainted water.

Reports indicate that other areas of the country might also be at risk of contaminants infiltrating the water supply. The Natural Resources Defense Council last September ended a two-year investigation of the nation's drinking water by concluding that as many as 900,000 people a year get sick from waterborne diseases, from which 900 may die. In addition, the Federal Centers for Disease Control and Prevention recently reported that about 100 of the country's largest drinking water systems do not filter properly, leaving some 21 million people at risk.

I hope that this hearing not only results in local water officials more carefully monitoring our water supply, but also results in a renewed effort nationwide to ensure that all Americans are guaranteed a safe, clean water supply. As Congress moves to reauthorize the Safe Drinking Water Act in the upcoming session, we must ensure no less.

Ms. NORTON. Thank you, Mr. Moran.

Ms. Byrne is a member of the subcommittee, and her District was directly affected by the turbidity crisis.

Ms. Byrne.

Ms. BYRNE. Madam Chair, I thank you for the opportunity to have this hearing today, and I will submit a formal statement in the record, but I would like to touch upon a couple of issues, and that is the Army Corps of Engineers' role in this in terms of the turbidity rising and nothing being done until a later date; the aluminum sulfate that should have been added that wasn't added in a timely fashion; and then for EPA I have a specific question about Fairfax County.

Evidently, they are not quite sure where Dalecarlia comes into Fairfax County, and although Arlington and Alexandria were well defined as service areas for this plant, the notification to Fairfax was much delayed. So we need to figure out how the information is getting out to some of these other localities.

I would also ask when we get to our testimony from the Army Corps of Engineers about previous incidents also that I believe Congressman Moran documented. But I will close so that we can start hearing from our experts and allow, if you would, Madam Chairman, my testimony to be entered into the record.

Ms. NORTON. Without objection.

[Ms. Byrne's prepared statement follows:]

STATEMENT OF HON. LESLIE L. BYRNE

I think all of us who live and work in the Washington metropolitan area have a new-found appreciation for clean, safe, drinkable water, and I am pleased that the Subcommittee is addressing this issue.

As we begin this hearing into what went wrong at the Dalecarlia plant and how to prevent this kind of incident, we need to remind ourselves that we are addressing the most basic of issues—how to protect the public from harmful and sometimes deadly contamination.

Preliminary reports indicate that the high turbidity was caused by both mechanical and human error. Although Dalecarlia is in the process of installing a warning system, I can't help but wonder why it has taken so long to do so.

We understand the need to take water treatment plants down for repairs, but is unfortunate that it takes an incident like this to teach us that pumping double the amount of water through a plant that does not have a warning system will not adequately protect the drinking water.

I am also interested to hear from the Army Corps of Engineers why the rising turbidity levels did not trigger an immediate response from the personnel on duty at the plant and why aluminum sulphate was not added to the water once they detected the higher turbidity.

This incident shows that people do make mistakes at times and it is unrealistic to expect otherwise, but we need to be very cognizant of these mistakes when they endanger the health and safety of millions of people. With so much at stake, the water treatment plant needs far more supervision than what was provided.

We would not be doing our job, however, if we did not acknowledge that protecting our nation's water supply means far more than just mechanical warning systems and proper supervision of personnel. Just as we need man-made backups, nature acts as a backup as well.

Incidents like the Dalecarlia contamination point to why we need a sustainable policy for our country's wetlands, which serve as a first level of filtration of ground water and a first line of defense against deadly contaminants. If we do not protect wetlands, we will make it that much more difficult for water treatment plants to do their jobs and will increase the likelihood of harmful contamination.

This is particularly important in high-density, high-growth areas like this one, where development is crowding out wetlands and heightening the likelihood of pollutants entering our water supply. It is no coincidence that the two most recent

large-scale cases of contamination, in Washington and in Milwaukee, took place in urban areas.

Any policy that attempts to deal with the dangers in our water system must recognize that we cannot let development completely obliterate our national wetlands.

At the same time, we must accept the fact that the threats to our water supply system are changing, and the federal government has to keep up with the times. As our water treatment and distribution system ages, the pollutants that enter the water stream also change.

I am concerned that our methods for testing the water supply are not sending out warning signals for the kinds of microorganisms that are today's risks, such as cryptosporidium. The result is that when we suspect cryptosporidium is in the water, we must undergo costly, time-consuming tests which leave everyone up in the air about the safety of the water supply.

I am curious to hear the EPA's thoughts on this issue, because I think it is time for us to find ways to test water which will enable us to detect harmful bacteria in a less cumbersome manner.

One final point which needs to be made is that federal agencies have to develop better ways of alerting local governments about these kinds of disasters. As a member of Congress whose constituents were greatly affected by this crisis, I am troubled that northern Virginia's city and county governments were not alerted to this crisis in a timely manner.

While the EPA has a response plan, I am curious to hear why it took so long for them to get the information out. A better working relationship between government offices will enable us to effectively coordinate the response to crises like this one.

I look forward to an informative hearing, and I look forward to hearing these issues addressed.

Thank you.

Ms. NORTON. We are pleased now to welcome on the first panel Major General Stanley Genega.

TESTIMONY OF MAJ. GEN. STANLEY G. GENEGA, DIRECTOR OF CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS; STANLEY L. LASKOWSKI, ACTING REGIONAL ADMINISTRATOR, REGION III, U.S. ENVIRONMENTAL PROTECTION AGENCY, ACCOMPANIED BY JAMES R. ELDER, DIRECTOR, OFFICE OF GROUNDWATER AND DRINKING WATER

General GENEGA. Thank you, Madam Chairwoman and other Members of Congress. I am here today to testify on the role of the Army Corps of Engineers in the provision of an adequate and safe water supply and the recent water quality problem that affected residents of the District of Columbia and neighboring communities in Maryland and Virginia.

Madam Chairwoman, the citizens who are served by the Washington Aqueduct Division of the U.S. Army Corps of Engineers deserve to have an ample supply of safe water. They should be able to turn on their tap with no concern at all about the quality of their water.

I am deeply disturbed that this confidence has been shaken by our failure to meet the turbidity standard at the Dalecarlia Water Treatment Plant. I assure the Congress and the affected public that we in the Army Corps of Engineers are committed to providing adequate and safe water to our customers and most importantly to restoring public confidence in our ability to do so.

I have a detailed statement which I have provided for the record. With your permission, I will summarize that statement now, Madam Chairwoman.

Ms. NORTON. If you would.

General GENEGA. Thank you. The Washington aqueduct system consists of facilities required to collect water from the Potomac

River, convey it to Washington, D.C., treat it, and pump it into the distribution system. These facilities include dams, conduits, reservoirs, filtration plants, pumping stations and transmission mains. The Dalecarlia Water Treatment Plant is a rapid sand filter plant that receives raw water from the Dalecarlia reservoir.

Aluminum sulfate, commonly referred to as alum, is fed continuously to this water to facilitate coagulation and sedimentation; that is, the removal of suspended particles.

Before the water is moved from the sedimentation basins to the filtration area, turbidity readings are taken. From the sedimentation basins, the settled water flows by gravity to 36 rapid sand filter beds. Gravel, sand and crushed anthracite coal are used as the filter media.

Prior to the water leaving the filtration area, water quality measurements are taken to ensure the water meets EPA standards before it moves into the clear water basins where it awaits movement into the distribution system.

The filtered and treated water is collected in covered, concrete clear water basins. Water samples and readings are taken, again, prior to transferring into the distribution system.

To comply with EPA requirements, and to assure that we are providing safe water to the public, the Washington aqueduct does over 300,000 lab analyses yearly from sample points in the distribution system, the treatment plant, and the Potomac River.

Colonel J. Richard Capka, the Commander of the Baltimore District of the Army Corps of Engineers, has completed a preliminary investigation into the events surrounding this month's water quality violation. Based on his preliminary findings, we have concluded that human error was clearly a factor.

The investigation thus far has revealed that there was not a proper and timely response to the rising turbidity levels in the raw water being drawn from the Potomac River. This lack of response directly resulted in filtered water turbidity levels which exceeded EPA established standards.

At or about 5:00 p.m. on the 6th of December, a marked change in the raw water turbidity levels occurred. The amount of aluminum sulfate that was being added to the raw water should have been increased to compensate for the rising raw water turbidity levels. It was not. In fact, alum adjustments were not made until more than two hours later and they were not adequate.

This allowed water with excessive levels of suspended matter to enter the filtration stage of the process. Despite efforts to mitigate the problem, by 1:00 a.m. on the 7th of December, the filtered water levels exceeded the EPA standards of 5.0 Turbidity Units, TUs; that is, the reading was 6.5 TUs. The levels at 2:00 a.m. and 3:00 a.m. were 9.0 and 6.5 TUs, respectively. All subsequent levels were below the 5.0 Turbidity Units threshold.

High turbidity measurements indicate that the treatment process was not working properly and that contaminants, cryptosporidium and giardia, may have passed into the distribution system.

Tuesday morning, December 7, Washington aqueduct senior managers were reviewing the data that had been collected during the period in question to ensure that the data, in fact, were accurate. They concluded a violation had, in fact, occurred and they re-

ported that to EPA Region 3 at about 2:00 p.m. And then, of course, as you know, at approximately 5:00 p.m. on Wednesday, the 8th of December, EPA announced the boil-water advisory for all customers of the Washington aqueduct.

In accordance with EPA's direction, we conducted two successive days of tests for the presence of cryptosporidium and giardia. Those tests returned all clear results. A subsequent third sample received on December 13, after the lifting of the boil-water order, was also completely clear of the two protozoa. We have made immediate adjustments in the plant operations to prevent recurrence of the turbidity problem.

The crew members who were on shift when the rising raw water turbidity levels occurred have been relieved of their filtration unit duties until completion of the final investigation. Additional supervisory surveillance of shift operations and quality control data analysis has been provided.

Additionally, we have undertaken the following longer range measures to ensure that we have a completely independent review of the entire plant operations. The first is a peer review. We have asked the operator of another major water treatment facility to provide us with an assessment of the operations and we expect to have that completed before the first of the year.

Additionally, we are contracting with an independent consultant, who is a recognized expert in the water field, to perform a comprehensive performance evaluation. The scope of work for this study has been coordinated with EPA and covers all plant operations from management through the efficiency of the water treatment process. We expect to have the contractor working by the first of the year.

The final results will not be available until, we estimate approximately March, but by the end of January, we expect some preliminary assessments from him and expect to take action based on those preliminary recommendations.

In closing, I would like to stress that we at the Corps empathize with the public. Many of our employees, of course, are customers of the system, and, in fact, our headquarters building is within the affected area, 20 Massachusetts Avenue.

All of our customers must have confidence in the Corps' ability to provide safe water. We are committed to thoroughly investigating the recent incident to determining what went wrong and why, and to taking the necessary steps to assure the public that this type of incident will not reoccur.

Madam Chairwoman, with regard to your comments about the Secretary of the Army earlier, I would like to inform you that I plan on submitting weekly reports to Secretary West and personally conducting major reviews once a month as to all of these corrective actions that we have initiated now, plus those that come out of the comprehensive performance evaluation until such time that we have completed those actions.

Madam Chairwoman, that concludes my statement. I would be happy to answer any questions you or other Members may have.

Ms. NORTON. Thank you, Major General Genega. Before we question General Genega, I would like now to hear from the EPA, Acting Regional Administrator of Region 3, Mr. Stanley Laskowski.

Mr. LASKOWSKI. Thank you. Good morning, Madam Chairwoman and other Members of Congress. My name is Stanley L. Laskowski, the Acting Regional Administrator for the U.S. Environmental Protection Agency Region 3, which covers the Mid-Atlantic States. With me today is James R. Elder, Director of EPA's Office of Groundwater and Drinking Water in EPA's headquarters.

Thank you for the opportunity to discuss with you the water supply for D.C. and the surrounding service areas and EPA's recent notice to boil water.

I have submitted written testimony to you. At this time with your permission, I would like to summarize some of the points that were made in that testimony.

I have also received a series of questions from the subcommittee over the weekend, and we have attempted to have answers ready for them to the extent that we could.

The testimony I have submitted provides the following: Provides some background information on what I hope is useful information about testing requirements and other related background information about the plant and the distribution system.

We also in the testimony have a distribution and a chronology of the events leading to the boil-water notice of December the 8th, and actions taken to prevent future instances. These actions include weekly EPA visits to the plant for the next several weeks, an independent EPA investigation to determine the cause of the incident, the advising of the Corps of Engineers on their scope of work for a comprehensive performance evaluation to review staffing; a review of the notifications procedures used by the Corps of Engineers when they notify EPA of problems, and also EPA's internal and intergovernmental coordination and consideration of what additional monitoring may be helpful.

As you know, some of these activities are still underway, and will be for the coming weeks, and additional information will be forthcoming. My written testimony also references the administration's 10-point legislative agenda for the Safe Drinking Water Act. Thank you.

Ms. NORTON. Thank you very much, Mr. Laskowski.

Could we begin with Major General Genega? General Genega, what caused the turbidity to rise so sharply?

General GENEGA. Ma'am, we believe that that was the heavy rainfall over that weekend. That is not in and of itself an abnormal situation, given the weather conditions of the preceding couple of days. That is, more material washes into the river, the river is carrying more particulates and the turbidity is thus higher.

Ms. NORTON. In recent years, has that been increasingly the case at Dalecarlia?

General GENEGA. To my knowledge, it is not increasingly the case, but it is a normal occurrence, given those kinds of weather conditions.

Ms. NORTON. EPA's prepared testimony indicates that the turbidity levels at Dalecarlia began exceeding normal levels on Sunday, December the 5th—several hours before the turbidity exceeded the permissible level on December the 6th. Was any action taken to compensate for the increasing turbidity on December the 5th?

General GENE. Ma'am, the turbidity did increase slightly on December the 5th, as you note. It did not exceed 1.0; the violation threshold is 5.0. We did take action around midnight to increase polymer to the water to reduce that turbidity. That is a proper action, although it should have been taken in a more timely fashion.

Given where the turbidity levels were on the 6th, I believe that action was unrelated to the occurrence of the high turbidity levels and the failure to adjust alum on the 6th.

Ms. NORTON. Why did as many as 14 hours pass between your discovering the turbidity violation of December the 6th and your notification of the EPA?

General GENE. We reviewed that morning with senior management personnel the data, including contacting the personnel who had been on shift the night before, to ensure the accuracy of the reports, and what they had done. We made the report to EPA as required before close of business on the next business day. But I would add that I am not satisfied with that reporting process.

Personally, one of our items coming out of this event is to review our own internal reporting procedures and to set some tighter standards for ourselves internally. As Mr. Laskowski mentioned, EPA intends on reviewing the reporting requirement itself, and so obviously we will be talking to EPA about what—not just what we do internally, but what we do to EPA to comply with the law.

Ms. NORTON. Do you have written internal procedures for notification?

General GENE. We do not, ma'am. We will. They are in development as I speak.

Ms. NORTON. Then when we speak of human error, the human beings are operating essentially on the basis of habit and practice, is that right?

General GENE. There is guidance for that practice. Yes, they are acting in accordance with their experience, but in accordance with their guidance that exists in the plant. That guidance, I believe, is adequate to tell them what to do with regard to, for example, a high turbidity level. It is not adequate with regard to the required notifications to supervisors and to raising the right red flags, if you will, to supervisory personnel who might be in a position, based on their experience, to take some other actions.

Ms. NORTON. So there wasn't any error when it came to notification; there simply were no procedures outlining how notification would take place. You said that human error was a factor when it came to adding the appropriate chemicals.

What was, or what might have been other factors?

General GENE. I very purposely said it that way, ma'am, because I cannot demonstrate that there were not problems with equipment. I don't know that to be the case. In fact, the way we have written the scope of work in coordination with EPA, we plan on having the independent contractor review the entire operation with a view towards telling us if there were equipment or operational issues other than the human factor that may have contributed to that.

I know human factor was—again, human error was a factor. I just categorically cannot exclude any mechanical or operational

problems and will not be able to do so until we have the results of that comprehensive performance evaluation.

Ms. NORTON. Well, you have indicated that there were attempts to add additional alum to divert the turbid water to other filters and to make adjustments in the flow of water through those filters. Is this your standard operating procedure?

General GENEGA. Yes, ma'am. This was the appropriate response for these conditions, but that action was taken late. As a result, a slug of water went into the processing system untreated. When the treatment began, it also was inadequate. It began about two hours late, and it, in and of itself, was not adequate until several hours later. That allowed another slug of only partially compensated water to enter the system.

Ms. NORTON. Let me understand this. Let's just assume, God forbid, that this were to happen again and an action were taken late. Is there any other way to more quickly remedy the problem than the ways you used?

General GENEGA. To my knowledge, there are not, ma'am, but that is one of the issues that we, again, having written the scope of work with EPA, we plan on having the independent contractor advise us on.

Ms. NORTON. What kind of training requirements for plant operators and management personnel are in place at the Washington Aqueduct Division?

General GENEGA. The principal training requirement for the water treatment plant operator and the operational personnel is on-the-job training. They normally, before they are allowed to actually independently operate the plant, have 8 to 10 years experience under very close supervision at the journeyman level before they move to that position.

Additionally, recently, I believe it is in the last year or two, EPA has designated some courses for water treatment plant operators. About 50 percent of our personnel have been trained at those courses and we expect to have 100 percent of them completed before the end of December 1994, and that was ongoing and in place.

Ms. NORTON. Let's try and get behind the words, "human error." Apparently the turbidity was significant.

General GENEGA. Yes, ma'am.

Ms. NORTON. Turbidity is cloudiness and even an untrained person, I suppose, can see when water is getting cloudy. Why wasn't the chemical added when the cloudiness developed? Were the personnel unaware of it? Were the personnel simply negligent and not paying attention to it?

What is the indication at this time of why the chemical was not added when we had turbidity that was shooting up so rapidly and so visibly?

General GENEGA. I need to explain the process just a bit before I answer your question, ma'am. The reading of that higher turbidity, or the reading of the turbidity level is a human process; that is, a human being reads that, and then the human being, using a set of tables, determines how much alum to add. That requires a manual, human intervention in the process, to increase, in this case the amount of alum to be added, and then it requires a further

test to refine the amount of alum added, and then a further adjustment.

We do know that the operator recorded the high turbidity levels, as he was required to do. He did not take the appropriate actions, and I do not have an explanation other than he failed to do so. His experience level was such that he had made those kinds of adjustments before, knew what had to be done. We have confidence that he had done those kinds of things before. I do not know why he failed to do so.

Ms. NORTON. What personnel are now in the positions that were involved in this crisis?

General GENE. We have changed the shifts, ma'am, and those two personnel are not now performing those functions. They have been relieved of those duties, at least pending the results of the investigation. We have taken additionally supervisory and engineering personnel to make up that shortage and to provide the additional supervision during the shifts.

Ms. NORTON. Are those interim measures or are those permanent measures? I assume that you do not intend to use supervisory personnel permanently.

General GENE. No, ma'am. I am working on the long term fix and at the moment I believe there will be an additional supervisor at the two plants, Dalecarlia and McMillan. I intend to take as input into that process the results of the peer review, if you will, and then, secondly, the results of the comprehensive performance evaluation, which is going to review staffing and training and numbers of personnel on shift and, of course, then in coordination with EPA, make a determination as to any additional steps I may prudently take.

Ms. NORTON. How many times has fecal coliform bacteria been found in the water in Washington or neighboring jurisdictions?

General GENE. There were three times to my knowledge in 1993, ma'am. The first one was in June at a fire station in Washington, D.C. The second was in September in northeast Washington, the Woodson High School area, and the third was in November at the Dalecarlia Treatment Plant. Those were positive samples in the distribution system, not in the plant.

Ms. NORTON. There have been various reports that last month there was a notice posted at the Dalecarlia Plant itself telling workers not to drink from the plant's water fountains. Is that true?

General GENE. That is correct, ma'am. That is the violation I spoke of in November which we reported to EPA. The distribution system in Dalecarlia comes off the treated water line before the treated water enters the clear, so-called clear water reservoirs before it goes to the rest of the city. Based on that positive reading, and the isolation of the distribution system, we imposed the boil-water order on the Dalecarlia distribution system; that is, in just the industrial plant in that area, based on EPA's direction.

Successive samples, after four days, showed no further positives and that order was lifted. But again, based on other tests taken past the clear well point, there was no reason to indicate that the treated water was the problem, rather, it was the distribution system at Dalecarlia.

Ms. NORTON. How often does that happen at Dalecarlia?

General GENEGA. That is the first time, ma'am.

Ms. NORTON. How do you account for these incidents beginning to crop up now?

General GENEGA. I don't have an explanation for them. They were viewed as a distribution system problem. That is because they occurred at other places in the distribution system, and at the plant, they were not positive. Those are not isolated tests, but they are made as part of an overall testing program. So based on results like that, both our analysts and EPA analysts can look at it and determine that, for example, other places in the city were positive and it was just that one area that appeared to have the problem as a result of the distribution system.

Ms. NORTON. Can you confirm reports that we have received of incidents in which bacteria or other microorganisms have been found in the water. For example, is it true that on November the 8th, fecal coliform was found in water at the White House and in a clear water sample at Dalecarlia, that total coliform was found in finished water at McMillan, and that fecal coliform was found at the first high reservoir.

General GENEGA. Ma'am, the requirement from EPA is to take a first sample. If that first sample is either positive or not definitely negative, that is, there are conditions under which one cannot say positively that it is negative, EPA requires us to take a second test.

During the course of the year, there were 40-some first indications, like the one at the White House that you mentioned, but the second indication was negative. Therefore, it was not a violation and the consideration was that it was negative. These tests consist of growing cultures in an incubator and take about 24 hours to happen. So in each of those 40-some cases we did the second test, which were only positive in the three cases that we reported.

Ms. NORTON. What I am trying to ascertain is how unusual this is. Is this to be expected in the water supply of this and other regions that the first test would come up this way? Is this an increasing phenomenon in this region or in the water at Dalecarlia, or should we simply be unconcerned that first tests are coming up this way?

General GENEGA. Ma'am, I would really have to defer to EPA's expertise in that regard. To my knowledge, that is not an unusual circumstance. We report those kinds of results monthly to EPA. For example, I have here a copy of the results of those tests that I mentioned to you, the some 300,000 annually, in a monthly report to EPA. But I would have to defer to their experience in a much broader number of plants.

Ms. NORTON. I would like, then, to ask Mr. Laskowski, should we be concerned if coliform turns up at the White House on a first test? Should we be concerned about the other incidents I have reiterated to Major General Genega? Is that something new?

Mr. LASKOWSKI. I don't have information on how frequently this happens throughout the country, for instance. It is not a rare situation when you take a first test and you get what they call a total coliform count and then you go into more extensive testing to see if there is really a problem.

I think the main concern is if you do find, after the more extensive testing, that you find a problem, fortunately, to my knowledge, we haven't found those problems when the more extensive testing was conducted. So yes, it is a concern, and it relates to a lot of things, including are you taking the test in the correct place? Are you ensuring that the distribution systems are flushed out on a regular basis, as they should be, and those are the kinds of considerations you have to look at. So—

Ms. NORTON. If you don't know about the rest of the country, how about this part of the country? Are those first results unusual or are they reasons for you to be concerned?

Mr. LASKOWSKI. I think, again, it is a reason to be concerned, but I don't think they are extraordinary in that in other systems you occasionally get a total coliform positive reading and you have to go in and do more extensive testing. So, again, I think it is reason for concern and to be vigilant on the situations and to ensure that the proper steps are being taken. But it is not an extraordinary situation.

Ms. NORTON. My interest, of course, is that we are reauthorizing two acts, and as we see a situation where you are getting greatly increased contaminants in the water, that is something we would want to take into consideration.

Mr. ELDER. Madam Chairwoman, may I add something?

Ms. NORTON. Yes, Mr. Elder.

Mr. ELDER. EPA certainly did consider the situation in September to be serious. We make a big distinction between total coliform positive readings versus a fecal coliform or an E. Coli coliform positive. The agency, in its current standards, allows for 5 percent of the monthly samples to—or less than that—to be acceptable for total coliform.

Any single presence of fecal coliform or E. Coli is considered a serious matter and that is what led the regional office in Philadelphia to issue an emergency order to the District at the end of September, and then subsequently, an order to the Corps of Engineers on October the 5th. So total coliform positives are a rather common occurrence. It is something that we provide more attention to.

Fecal coliform or E. Coli positives are a rare occurrence and something that we treat as an acute violation.

Ms. NORTON. I would want somebody to confirm whether or not fecal coliform was, indeed, found in the White House on November the 8th. Do you know, Mr. Laskowski? We have just heard that that is serious. Do you know, Major?

General GENEGA. It was a fecal coliform indication, but it was not confirmed by the second test. And that requires confirmation by the second test also.

Ms. NORTON. How about E. Coli bacteria, which we just heard is serious, in filtered water and in a clear well in Dalecarlia on November the 7th.

General GENEGA. That would have been a first indication, ma'am, but not confirmed by a second test. Actually, these standards are set for water in distribution systems, not in treatment plants. Bacteria is killed by adding chlorine, but there must be some contact time to do the job. That time begins in the treatment

plant, but bacteria continue to be killed after the water leaves the plant.

Ms. NORTON. When you say a first indication and not confirmed by a second test, would you explain what that means? Does it mean that it wasn't there at all, or does it mean that something has happened to it and you all have taken care of it.

General GENEGA. Again, I may be inadequate scientifically to explain that, but as I understand the requirement, when checking a distribution system, if one sample results in a total coliform, fecal, or E. coli positive, then a second series of samples must be taken to confirm. If the second sample results in a fecal or E. coli positive associated with any other bacteria positive, then an acute violation occurs.

With regard to the scientific basis for that, I am sorry, I am inadequate to answer that question.

Ms. NORTON. Perhaps Mr. Laskowski can help us out on that. How serious is it that the first reading shows the presence of a serious contaminant, but later on we no longer see that? Should we have been concerned ever since it doesn't reappear again?

Mr. ELDER. Madam Chairwoman, let me make another attempt at that. The routine testing requirement is for total coliforms. If there is a total coliform, as General Genega said, then there is a requirement for repeat sampling tests for fecal or E. Coli, or to test again for total coliform.

If you then have a positive for either the fecal or the E. Coli or the total coliform, then you have a more serious situation on your hands.

My understanding of the White House situation was that they tested at the Corps laboratory for total coliform. They had a positive. They went and did the repeat sampling, and one of those samples turned out to be a positive for fecal. And we have been in contact with different officials at the White House facility to see whether or not this is a problem associated with the distribution system or whether or not it is a problem unique to what goes on on the White House grounds. But that issue was overshadowed by the turbidity incident that occurred starting on, or came to our knowledge on December the 7th.

Part of our follow up investigation is not only to deal with the Corps of Engineers and with the area jurisdictions, but we also had conversations with people in the White House Office of Administration and with the Secret Service to deal with that matter unique to the White House grounds.

General GENEGA. Ma'am, with regard to the actual happenings, I have slightly different information than Mr. Elder does. What I would like to do is make arrangements here perhaps to submit for the record, to submit exactly what happened with exact times and so forth. I will turn those records over to EPA and jointly with EPA, provide that information for the record to be sure that we are totally accurate on it.

Ms. NORTON. Well, we would very much appreciate it. We assume that whatever you do for the White House, you can do at least as much for the rest of us. So we would like to know what you do for the White House.

[The information received from General Genega follows:]

WHITE HOUSE MICROBIOLOGICAL MONITORING**Summary**

On November 30 and December 6, 1993, White House samples tested presumptive positive for total coliform; a retest of the first sample, taken on November 29, tested positive for E. coli on 4 December 1993. However, in both instances, more extensive follow-up samples and confirmation tests were all negative. Although no violations had occurred, the results of all tests were provided to the White House and EPA Region III.

Chronology

- November 29, 1993 - Sample from sample point #7 tested presumptive positive for total coliform on November 30. Confirmation results were mixed, one positive and one negative.
- December 3, 1993 - November 29 sample is retested and tests positive for E. coli on December 4.
- December 6, 1993 - Three recheck samples taken from the original sample point #7 and points upstream and downstream eventually test negative. (The original sample point recheck tested presumptive positive which required an additional 24 to 48 hours to confirm.)
- December 6, 1993 - Two routine samples collected at the White House sample points #6 and #7 test presumptive positive. Confirmation results on December 8 test negative.
- December 8, 1993 - Eight special samples, four upstream and four downstream from the White house, were taken from the D.C. distribution system and tested negative.

Narrative

1. The White House is supplied water from the District of Columbia distribution system. The water is then subjected to other treatment before it is introduced into the White House distribution system. The nature of this internal treatment is unknown to us. Sample collecting is done by a member of the White House staff.

2. Microbiological samples collected by White House staff are turned over to our sample collector who transports them to the Washington Aqueduct laboratory for analysis. Samples are analyzed using the same procedures used for samples collected from the District of Columbia distribution system. Routine results are reported to the White House. Region III is notified concurrently with the White House only if fecal coliform of *E. coli* are detected or where any unusual microbiological activity is observed.

3. On 30 November 1993 a White House sample, taken on 29 November 1993 from a point designated #7, tested presumptive positive for total coliform. (The initial or presumptive test to determine the presence or absence of total coliform requires a 24-hour incubation period.) Total coliform confirmation results were mixed, one positive and one negative. (Confirmation tests require an additional 24 to 48 hours of incubation.) The concurrent tests for fecal coliform and *E. coli* were negative. Because the confirmation results were mixed, the positive confirmation sample was retested on 3 December 1993 and tested positive for *E. coli* on 4 December. This result and all subsequent results from the following series of tests were given to the White House and Region III, EPA.

4. On 6 December 1993, three recheck samples, taken from the original sample point, #7, and points upstream and downstream within the White House, eventually tested negative. (The original sample point recheck tested presumptive positive which required an additional 24 to 48 hours to confirm.)

5. Also on 6 December 1993 two routine White House samples from points designated #6 and #7 tested presumptive positive. Confirmation results on 8 December 1993 were negative.

6. On 8 December 1993, eight special samples, four upstream and four downstream from the White House, taken from the District of Columbia distribution system tested negative for total coliform.

Ms. NORTON. Whose responsibility is it to notify the jurisdictions that the Corps plant serves that there is a water crisis? Whose specific responsibility is that?

General GENEGA. Ma'am, it would be our responsibility if there were a crisis, for example, and I guess at least for the purpose of my answer, let me define crisis as our inability to deliver water. We would notify our customers and then the EPA.

With regard to specific violations, for example, a positive reading within the distribution system, we notify both EPA and, for example, the District of Columbia. We do the testing for Arlington County and so we are providing the test results to Arlington County. EPA, or in the case of Arlington County, the Virginia health authorities would then make a determination as to what actions were necessary, given the circumstances of that report and the context in which those readings were taken.

Ms. NORTON. Well, we know that this required notification ultimately.

Now, Mr. Laskowski, you notified the District of Columbia, did you not?

Mr. LASKOWSKI. That is correct.

Ms. NORTON. And that happened during a meeting that had been called for another purpose?

Mr. LASKOWSKI. That is correct.

Ms. NORTON. If that meeting had not been called, what would have been the procedures for notifying the District of Columbia and the other jurisdictions?

Mr. LASKOWSKI. We still would have notified the District, but I would not have been down here in person to do it; we would have done it by phone.

Ms. NORTON. Then you would have been responsible for notifying the District of Falls Church and the other jurisdictions, and not the Corps?

Mr. LASKOWSKI. Well, I think as the General said, they notified the customers that they supply water to, but then EPA also notifies the District and the other people that are affected by the crisis.

Ms. NORTON. So the Corps notifies and the EPA notifies?

Mr. LASKOWSKI. We notify if there is a crisis where we are going to issue a boil-water notice. We would notify all the customers, the District and the outlying areas of Virginia. In Virginia, we work with the State of Virginia, who has what they call primacy of the Safe Water Drinking Act of Virginia, and they also want to notify the county officials, the local officials.

Ms. NORTON. Are there written procedures for how that notification will take place?

Mr. LASKOWSKI. We have procedures, as I understand it, and they were followed from what I am told.

Ms. NORTON. You haven't answered my question. Are there written procedures as to how the notification will take place?

Mr. LASKOWSKI. There are procedures, as I understand it, to—

Ms. NORTON. If there is a boil-water alert, you just call the jurisdiction up on the phone and then the jurisdiction takes over?

Mr. LASKOWSKI. I am sorry, yes. We would do it by telephone. That is what the notification would be, and in terms of getting the

word out to the broader community, we do that through the electronic media. We think that is the most effective way to do it.

Ms. NORTON. Did you notify all of the jurisdictions in a timely fashion?

Mr. LASKOWSKI. We have—our notifications took place on the afternoon of the 8th, starting at about 1 o'clock and going up until about 5 o'clock.

Ms. NORTON. How did you notify Falls Church and Fairfax?

Mr. LASKOWSKI. I have a listing here of notifications that took place. I will try to find that if I can.

In Virginia, we notified Alan Hammer from the Virginia Department of Water Supply at about 1:30 in the afternoon on the 8th; he indicated that he wanted to be the one to notify the local officials.

We also notified the Virginia Secretary of Health and Human Resources, the Secretary of Environment in Virginia, another person at the Department of Environmental Quality in Virginia. So the normal procedure as followed is that we notify the State. The State usually wants to notify the local officials. And that was all done between—according to my records, those contacts were made in the afternoon of the 8th, between 1:20 and 1:25.

Ms. NORTON. Did you offer to help the jurisdictions explain—the jurisdictions, of course, have no experience or expert knowledge about these matters—to the public what was going on?

Did you offer to go before the radio and the TV and explain what was going on? Were there procedures regarding who was supposed to explain what was going on?

It is one thing to issue a boil-water alert and to call what amounts to a layperson in Falls Church or the District of Columbia and say your water should be boiled. It is another thing to then give guidance to those jurisdictions as to how you think they should proceed. Was there any effort to help them explain this to the public on your part?

Mr. LASKOWSKI. I think it could have been better. I visited D.C. Government officials at 2:30 on Wednesday afternoon and we had a meeting and the District Government tried to make some phone calls. We set up, as you know, a bank of phones in the Council of Governments, who was good enough to help us, and about 15,000 calls came in on that. So I think we did the best we could in trying to get the notice out.

But part of our investigation is going to be how we could improve those procedures and notification, especially with the outlying areas and the different service districts, but there is, as you know, local officials in Virginia, there are county officials and water authorities and State officials.

Ms. NORTON. For that very reason, I would think that the EPA and the Corps would have a procedure for who ought to be notified and how that ripples off of others.

Mr. LASKOWSKI. Yes, I don't think they are as detailed as they should be.

Ms. NORTON. Are they written procedures?

Mr. LASKOWSKI. I understand them to be; the written procedures that we go through in terms of notifying the different jurisdictions.

But it is my understanding that they are not very detailed and I think that is something we have to tighten up a little bit on.

Ms. NORTON. I have other questions, but I want to turn—

General GENEGA. Might I clarify a comment I made a moment ago?

Distribution systems are owned and operated by the local authorities. We transmit water, for example, to a point on the D.C. system where the District of Columbia owns and operates, maintains that distribution system. So with regard to violations in the distribution system, we do the sampling, again, with our laboratory taking samples in the District of Columbia and testing those samples, both in our plant and from the distribution system. When there is a violation in the distribution system, we notify the customer, District of Columbia, and the EPA. When there is a violation in the plant, because of the EPA's responsibilities as the regulator, we notify EPA. They make a determination of what actions are required there.

I might also add, as I mentioned, we have a few items in writing with regard to our notification procedures. I do not call them adequate written procedures; they are being reviewed as we speak and will be significantly improved on.

Ms. NORTON. That is an important clarification, but in terms of notification, you regard that as the responsibility entirely of the EPA in a situation such as this?

General GENEGA. Well, ma'am, what I regard is EPA's determination as to what actions are required.

Ms. NORTON. I understand that. I understand the scientific expertise. I am now trying to clear up who notifies the jurisdictions involved, and you understand that to be an EPA responsibility?

General GENEGA. That is correct, yes, ma'am, as it stands today, as Mr. Laskowski explained. Yes.

Ms. NORTON. Mr. Petri.

Mr. PETRI. Thank you very much, Madam Chairman.

I guess you're in the position of being darned if you do and darned if you don't, in the sense that no real emergency ended up existing, but there were indications that one might have existed. That has to happen from time to time and then someone has to make a call. Whichever way, you make a call, there are some downsides. We are all familiar with the children's story of the "Boy Who Cried Wolf," and got a lot of attention doing it, and after awhile people started ignoring the call. And so there is a danger of issuing all kinds of warnings every time the needle waves.

If there is not a real emergency, people stop responding and then when the real emergency does occur, people are too lax. So I am just curious to know a little about the decision-making process to issue the boil-water alert. Could you go through why that was done or why it was felt to be necessary?

How long does it take from the time they make the check and when the water actually comes out of someone's tap; to go through the whole system and follow-up tests, could they have been made in that time frame? Could you review the whole situation; and why it was decided to issue the boiled-water warning alert to the public at the time that decision was made? Who made that decision?

Mr. LASKOWSKI. I made that decision. I was the final decision-maker, so let me attempt to reconstruct things for you. At approximately 1 a.m. on the 7th of December, according to the information we have, the 5.0 Turbidity Units was exceeded. On the 7th of December, around 2 p.m., EPA was first notified there may be a problem, and between 2 and 4 o'clock that afternoon, there was a series of phone calls between the Corps of Engineers and the EPA, during which time EPA learned certain information that there was a problem.

The problem may be more than just one filter, as we originally thought, but it may be a more widespread problem at the plant. We didn't have at that time any information that really sent us into the crisis mode since at that time the Corps told us they were taking corrective actions, and at 8:30 the following morning on the 8th, we called the Corps to check on the situation. At that time, we learned the duration of the problem and the fact of the exact level or where the peak levels were of the Turbidity Units. Then we became concerned that we could be in a difficult situation.

We called our experts in research and development in Cincinnati, our national expert on cryptosporidium and the person who was involved in the Milwaukee situation; that was about 9 o'clock on the 8th of December. At 11 o'clock, our regional office, our headquarters office and our research and development people got together, at the staff level concluded—by conference call they got together, and at the staff level they concluded that they were going to recommend to management that a notice be issued.

I happened to be in Washington at the time for other business. I called in to the regional office at 1 o'clock on the afternoon of the 8th and was told of the recommendation. I made my own personal contacts at research and development and our headquarters office, and at 2 o'clock I gave the go-ahead to issue the notice.

At 2:30, I visited the Deputy Mayor's office in D.C.; it was a meeting that was already arranged on another subject. And at 2:30, I briefed the Deputy Mayor. He then helped us with a series of phone calls and called the Council of Governments to help react to this crisis. And at 5 o'clock we issued the notice.

If I could just back up for a moment, the decision was made as a precautionary measure. I thought it was better to be safe than sorry, to issue a notice, given the fact that our national experts were telling us that the situation in Milwaukee, where 400,000 people were ill, and given the information we had, we thought, and I thought, making the final decision, that it was better to not take any chances, realizing that it would be a considerable inconvenience to everyone but it would be much worse if we didn't take the action and hundreds of thousands of people got sick. So I took responsibility for that decision. And after review with other people, I think it was the right decision.

Mr. PETRI. It was not an inconvenience for the bottled water people. They made a killing. They probably appreciated it.

We have a printout of the testing on an hourly basis and it shows that at midnight it was well below—at midnight—at the end of the 6th and beginning of the 7th, it was well below the 5-unit alarm, at 1.91. And then at 1 o'clock, it suddenly spiked up to 6.5. And someone could say, was that a faulty test? What is going on?

So they might not have reacted. This is just one test. Suddenly at 2 o'clock, it goes up, though, instead of down, and it is at 9. And maybe they started acting. In any event, at 3:00 a.m. on the 7th, it dropped from 9 down to 6.5, and by 4 o'clock it is back below the 5. So that persisted. It was always below that 5-unit point the rest of the day of the 7th. It dropped even below the 1-target point later that day. And so that takes care of the 7th.

We get into the December 8. No problem, it is well below 1 all day. It looks fairly normal, continues to drop on average. And you met on the morning of the 8th, after everything had been normal since 3:00 the previous night, more than 24-hours earlier, I guess, and decided we had to issue this notice.

Was there some other information beyond the spike up in turbidity that led you to do that, or did you feel you had no opportunity to do further verification? Or why, when everything had returned and it is not an ongoing bad test, did you decide to issue the warning to the public?

Mr. LASKOWSKI. Of course, there was distribution time between the system, from the time the water leaves the plant until it gets further out in the system, could be, as I understand it, at least two days. And maybe longer. So much of the water that passed through the plant when those levels were high was then out in the distribution system and people were consuming it.

I think it is also important to note that EPA standards are 5.0 on the instantaneous basis, but that in 95 percent of the tests in any given month should not exceed 0.5, so it didn't fall below 0.5 until I believe it was the afternoon of the 8th. And again talking to the people that had been through the Milwaukee situation, they said it was very similar to that situation.

Of course, there is not normally extensive tests taken for cryptosporidium on an ongoing basis. And so that information was not available. So we had to assume that it may be there, especially with the high rainfall at that time, the rivers were high. The runoff from farms down the Potomac was higher than normal. And we thought that that could indicate that there could be more cryptosporidium that we would normally see and giardia, also. And so we didn't have hard data on this, but it was decision-making under uncertainty. And what swung it for us, I think, was talking to the national experts who had seen situations in other plants across the country, telling us this was very similar to what happened in Milwaukee. And then, in my mind, anyway, the decision became rather easy to make.

Mr. PETRI. So, presumably, if there had been no problem in Milwaukee, no public notice would have been given based on this increase and then the drop in turbidity here, is that right?

Mr. LASKOWSKI. I think Milwaukee taught us all a lesson within the water supply community and the regulatory community. And I wouldn't want to speculate exactly what we would have done with another set of facts, but that definitely weighed heavy in the decision-making.

Mr. ELDER. Mr. Congressman, may I add something?

There would have been a public notification requirement within 72 hours after the instantaneous maximum criteria was violated,

but that would have just been notice to the customers; that is different than a boil-water decision that EPA made.

Mr. PETRI. Right. How long does it take to conduct a cryptosporidium test or other tests that might be indicated by an increase in turbidity beyond the guideline?

Mr. ELDER. Under the only analytical procedure that is available to us, which is very cumbersome, it takes four to six hours to collect the sample and then it takes 24 hours in the laboratory to incubate or identify whether or not there is giardia or cryptosporidium present. We are looking at other analytical techniques that are being pioneered in England, because they had some experience with this in London in the mid-1980s.

Mr. PETRI. So it would have been physically possible to get an all-clear test within the two-day system run-through window had the test been conducted within an hour or two of the high turbidity readings; is that correct?

Mr. ELDER. In our view, it still would have been too late. We still would have had a problem. Because you can't have the sample results until after 30 hours you collected the sample.

Mr. PETRI. So we have a situation that every time we have an increase in turbidity, we issue a boiled-water alert to be sure that people might not possibly be exposed to some contagious disease; is that correct?

What would we do to be more sensible and not alarm people needlessly? Should we have bigger holding tanks so that it takes longer; so 30 hours would come within that?

Mr. ELDER. Our view is that there shouldn't be these types of high-level readings of turbidity. That is why we decided it was a matter of serious health concern and took these precautionary measures. Right now, we are limited by the analytical methodology. Were these same type of readings to occur again, either in the D.C. system, or the D.C.-area system, or somewhere else around the country, we would have to follow the same course of action, and in my capacity, I would give the same type of advice to the other nine people around the country that serve in Stan Laskowski's position.

Mr. PETRI. So buy bottled water stock is what you are telling me. You guys are going to be notifying the public, whether or not there is a real danger if there is a paperwork indication that it doesn't meet the guidelines that are set?

Mr. ELDER. It is conceivable, but we are working on the analytical methodology, as I indicated. It is not that common an occurrence to have the scenario that occurred in Milwaukee or in the Corps of Engineers's facility. And I am hopeful that it will not happen again anywhere else.

Ms. NORTON. Will the gentleman yield?

All you have to do is to make sure you catch it before it gets into the distribution system; isn't that so? And then we wouldn't ever be into bottled water. The problem is that it was not caught and when it gets into the distribution system, you have to worry about boiling water. But I take it that the reason that this is not happening all over the United States is that it is rare that such water trespasses into the distribution system itself.

Mr. ELDER. Correct.

Mr. PETRI. I understand the determination to take action against people who should be keeping the turbidity below those guidelines through alum or whatever. But is the solution then to alarm the public when there is no real need for alarm or is the solution to go after the people who aren't doing their job and alarm them by possibly removing them and finding someone who is doing their job?

It seems to me that there is a problem here but the solution doesn't quite fit the problem. But I might be missing something.

Mr. LASKOWSKI. In my mind, the solution is to make sure that the plant is operated as well as it could be operated, which may mean further automation, which the Corps is undertaking. It may mean additional training. It may mean a lot of additional things. And we are looking into all of those things and we will have a full report later on that as part of our investigation.

I think we are getting to—what you were getting to earlier was the ability to have information in your hand to make a decision more easily. And on cryptosporidium, we could require every water supply to test for that every hour if we wanted to. It is very expensive. But the better solution is to operate the plant correctly. But we are looking at all situations and, hopefully, we will come up with better recommendations to talk to the monitoring and the operations of the plant.

Mr. PETRI. I don't want to belabor the point, but I do want to indicate that while there is clearly a problem with people violating guidelines and it should be dealt with, there is also a problem that is less easy to quantify. We reduce to numbers on a piece of paper with issuing repeated and alarming notices to the public without a real, honest to goodness, substantial basis for those alarms based on the experience, judgment and every other ability that people have who are supposed to be, in decision-making positions. And the cost is that people will start giving less credence to alarms because they say, well, there they go again and telling us about this drinking water and nothing happened last time, and so on and so forth. And that does lead to real big, though not as easy to quantify, problems keeping our guard up as citizens and protecting ourselves and relying on the advice of our responsible officials.

So I would only caution that you are going to get in trouble whichever way you make a decision. If you don't want it to get up above that 5 level, and if it does, you should be taking action. So maybe tougher guidelines and suspending personnel would be more appropriate rather than trying to club them or shame them by alarming all kinds of senior citizens and children in a jurisdiction. It seems to me that we do want to notify the public when there is a real danger but we want to do everything we possibly can to determine whether, in fact, the danger exists before issuing these 5-alarm alerts, so to speak. That is my own advice as a Member of this panel. Otherwise, I thank you very much.

It seems to me—and you can correct this or comment on it just to wind it up. If there were good testing procedures in place and they had been properly and quickly deployed, it might have been possible to have gotten some indication that would have led the decision-makers to not issue a boil-water alert to the public two days

after a blip in the turbidity; is that correct? Or are we still flying blind and waiting for the British to come up with better tests?

Mr. LASKOWSKI. I think that is the case. Science is not quite where we would want it to be. I would say that the Corps was in compliance with the testing that the EPA required, but that we don't normally require testing for cryptosporidium and giardia throughout the Nation on a very frequent basis. And, you know, that is, of course, very expensive to do, and if the plant runs correctly, it would be rare that you would have a situation like this. So it is a balancing act.

I think as EPA issues additional regulations and we go through those procedures with the Safe Drinking Water Act reauthorization, that those things will have to be addressed, I believe.

General GENEGA. Sir, may I amplify one comment that Mr. Laskowski made?

We are in the process and have been for the last couple of months, of installing a more automated system, that is automating the connection between a high turbidity reading and the feeding of alum in the correct proportions. That is a part of our ongoing capital improvements program, and in fact the results of a comprehensive performance evaluation done by an outside independent contractor not quite two years ago and coordinated with EPA. That feed will be automatically determined by this equipment. It is being tested as we speak, and the alarm systems are being tested that was ongoing before. It will not totally eliminate human intervention, but it will decrease it somewhat from what is required today.

Mr. PETRI. Well, thank you.

Ms. NORTON. Thank you Mr. Petri.

Ms. Byrne.

Ms. BYRNE. Thank you, Madam Chair.

General, you had mentioned three incidents of E. coli bacteria found in the last year.

General GENEGA. Fecal coliform.

Ms. BYRNE. Around October 10th, did you find any other bacteria, two incidents of other bacteria?

General GENEGA. I don't know the 10th October date, but I would be happy to provide you what happened on the 10th, for the record. But, again, in 1993, there were some 40 odd first indications and there were only three confirmations. So what I would believe is if you have some information about the 10th of October, that that may have been a first indication, but the follow-up was negative, therefore, there was an overall negative report.

But if I might, let me examine our records for the 10th and submit for the record what I think happened on that and then what happened on any follow-on tests.

[The information received from General Genega follows:]

MICROBIOLOGICAL SAMPLING RESULTS FOR OCTOBER 10, 1993

PURPOSE: The following information is provided in response to Congresswoman Byrne's inquiry at the Water Resources and Environment Subcommittee hearing on December 20, 1993, regarding the water problems at Dalecarlia Water Treatment Plant. Congresswoman Byrne asked if there had been "two incidents of bacteria" around October 10.

FINDINGS: An examination of the microbiological laboratory results of daily water samples shows that there were no positive readings on October 10, 1993, nor were there positive readings at any times during either the preceding week, or the succeeding week.

Ms. BYRNE. Do you have any information as to what your supply of alum was on Sunday before the turbidity?

General GENEGA. While the supply of alum was quite adequate in quantity to treat the amount of water being processed, one supply bin ran empty requiring plant officials to reroute water under another bin. We did run out at the Dalecarlia Plant of polymer, which was replenished on the 6th. Polymer is another compound which added in the process assists in precipitation. On the 6th, there were sufficient quantities of alum, aluminum sulfate, and polymer in the plant had the correct procedures been followed. They were not.

Ms. BYRNE. So you had an adequate supply, regardless of how much water was coming through the plant?

General GENEGA. Yes, ma'am, that is correct.

Ms. BYRNE. Okay. Let me follow this. The chemical plant does about 110 million gallons; is that correct?

General GENEGA. We were providing about 170-million gallons per day at Dalecarlia during the time period in question here.

Ms. BYRNE. But, I mean you must have a capacity to this chemical plant; it is not unlimited; right?

General GENEGA. No, ma'am, but the capacity is higher than that. It is slightly in excess of 200 million gallons a day. That is the capacity of the overall plant.

Ms. BYRNE. What is the capacity of the chemical plant where these chemicals are added?

General GENEGA. That is at least 200 million. I don't know the exact in number, but it can accommodate a flow-through of 200 million gallons a day.

Ms. BYRNE. So you had enough alum and polymer on hand to handle 200 million gallons?

General GENEGA. I did not have adequate quantities of polymer on hand on the 5th. When the incident on the 6th occurred, the aluminum sulfate on hand was adequate; it was not appropriately adjusted to compensate for the increasing raw water turbidity. And the polymers had been replenished on the 6th, also, and those quantities were adequate.

Ms. BYRNE. Okay. I am trying to figure out the standard operating procedure at this plant. And it is my understanding that the records are all kept in pencil. Could you tell me why?

General GENEGA. I have reviewed the records. They are kept on the log in pencil. I cannot tell you why. I have looked at records for that day, and while I did not examine them in great detail, I found no evidence of any erasures there, and in fact we are the ones that of course reported that violation to the EPA.

Ms. BYRNE. But do you think it is odd to keep permanent records in pencil?

General GENEGA. I confess I don't have an answer for you right now, ma'am. I don't know why we do that or if we have a requirement to do them in any certain way.

Ms. BYRNE. First of all, how many civilian employees work at the plant?

General GENEGA. There are about 240 employees that work between the Dalecarlia and the McMillan Plant. Only a small number of those, on the order of 30-odd, are actually filtration plant operators. The remainder operate the pumping plant and do various sorts of maintenance responsibilities; run the laboratory, for example, that does the various testing, and then of course supervise that entire operation.

Ms. BYRNE. Do you think this plant has had a history of personnel problems that added to this crisis?

General GENEGA. There have been some personnel problems at the plant. Based on my knowledge of those personnel problems, I would not make the statement that it added to the difficulties at this particular time.

Ms. BYRNE. Have you seen a copy that was sent to both Senator Warner, Robb, and Congressman Wolf of a petition by the employees at Dalecarlia on the 3rd—excuse me, the 10th of March, 1993? And it is—have you seen this petition?

General GENEGA. No, I have not, ma'am.

Ms. BYRNE. The petition says that we, the employees of the Dalecarlia Washington Aqueduct, a division of the Army Corps of Engineers, hereby petition the United States Congress to launch a congressional investigation of the branch chiefs in the Baltimore districts for the following reasons: Gross mismanagement, gross waste of funds, abuse of authority, specific danger to public health and safety, and most of all, discrimination. And it has 40 signatures on this petition that was sent to Senators Robb and Warner and Representative Wolf. And I would think that because of inquiries that have been made by all three of those gentlemen, that you or somebody in the Army Corps of Engineers would be aware that there have been more than a few problems.

General GENEGA. Ma'am, I am sorry, I have just been reminded here—I was not aware of that petition per se, but I was aware of an allegation of PCB contamination. An employee has indicated that there was PCB contamination. Tests were made by the laboratory of samples taken from that location and those tests proved negative.

We tested for a number of additional materials besides the PCB. One location had a tainting of lead. We are in the process of removing some small number of yards of material to treat them and remediate that hazardous waste, as we speak. I am not aware of the other allegations in that petition.

If I might, I will certainly review that document and review what actions were taken in response to those Senators and Congressmen and provide that for the record.

[The information received from General Genega follows:]

CENAB-OC

11 January 1994

MEMORANDUM FOR the District Engineer

SUBJECT: Summation with regard to allegations of prohibited discrimination, Inequity, Fraud, Waste and Abuse at the Washington Aqueduct Division

1. During the past three years, fourteen (14) formal complaints of prohibited discrimination have been filed by employees of the Washington Aqueduct Division. Two individuals filed 50% of those fourteen cases. There have been no findings of prohibited discrimination.

2. During the past three years, there have been four "hot line" type allegations of fraud, waste, and abuse at Washington Aqueduct Division. Three internal investigations and investigation by USACE IG have not substantiated any wrong doing.


OMAR M. ZEN

Assistant District Counsel

CENAB-EE

7 January 1994

INFORMATION PAPER

SUBJECT: EEO Information as Requested by HQ USACE for Congressional Committee

PURPOSE: To provide the Commander Information Regarding the Allegations of Discrimination, Inequity, Etc.

1. Allegations of discrimination by employees at Washington Aqueduct Division are processed in accordance with established procedures established by Title VII of the Civil Rights Act of 1964, as amended and applicable Government regulations. There have been a total of (14) fourteen formal complaints filed during the past (3) three years. Of these fourteen complaints, (7) were filed by two individuals which represents 50% of the complaints filed by employees at the Washington Aqueduct Division.
2. The attached chart reflects the status of the cases filed as follows: 3 settled through negotiated settlement agreements; 1 decided by Merit Systems Protection Board (in favor of the Agency); 3 were closed by final Army decision with a finding of no discrimination; 2 were dismissed; 2 requested hearings by the Equal Employment Opportunity Commission (EEOC); 1 closed for failure by complaint to prosecute; 1 appealing dismissal decision to EEOC; 1 in civil litigation in U.S. District Court for the District of Columbia, trial to commence on 24 Jan 94.
3. Although there is a perception of prohibited discrimination by some employees of the Washington Aqueduct, employees have utilized the discrimination complaint processing system that afforded them the opportunity to have their allegations heard outside of the District. These procedures have resulted in no finding of discrimination to substantiate their allegations. We continue to actively attempt to change the perception by having ongoing training for Corps employees at all levels. We constantly keep employees informed of EEOC complaint processing procedures and Department of Army and Headquarters' policies on non-discrimination/harassment in the workplace.
4. In the past we have conducted informal "Rap Sessions" as a vehicle for employees to air their concerns/perceptions of discrimination. At these sessions, we were successful in resolving what employees believed to be discriminatory, but after having their concerns properly addressed, the employees were satisfied that what they perceived to be discrimination was not.

-2-

5. In light of the recurrence of the perception of discrimination, we are reinstituting the previously successful "Rap Sessions". The first informal "Rap Session" has been scheduled for 13 January 1994 at the Washington Aqueduct. The program is designed to encourage employees to openly discuss their concerns and to help find mutual solutions to correct any perceived problems. These sessions will continue until employees and management feel that there has been improvement. Efforts are underway by the EEO Office and the management officials at the Washington Aqueduct to provide training on "Diversity in the Workforce". This training will be conducted by professional trainers who are well-versed in this subject.

6. We will continue to strive to have a workplace where employees feel they are part of the solution and not the problem.

2 Encl

1. Pie Chart

2. Status Report

PREPARED BY: IRENE TACKETT

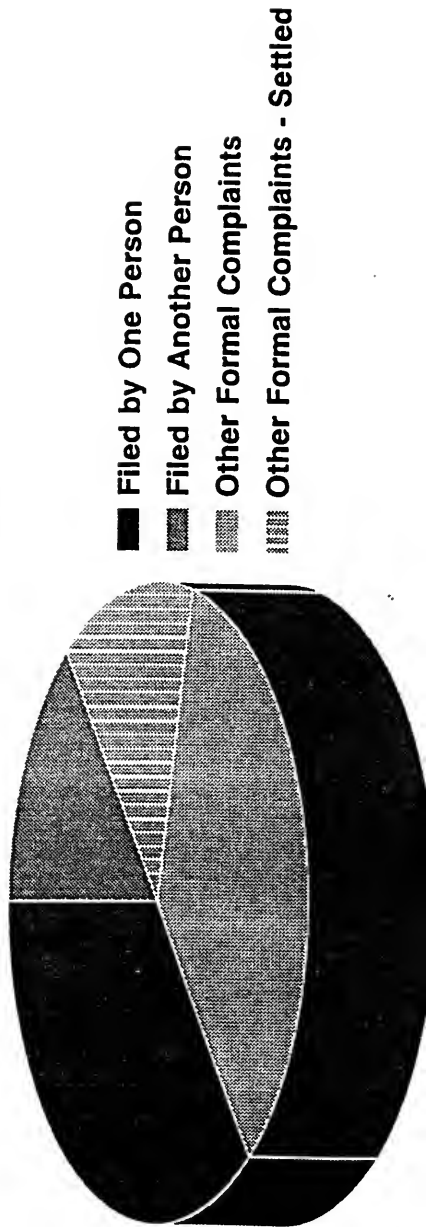
AUTHENTICATION: *Irene B. Tackett*

04913-01

04913/ACE/AGX-4B

PJD 12-23-93

Baltimore District Equal Employment Opportunity Office Formal Complaints Report



**SALTMORE DISTRICT EQUAL EMPLOYMENT OPPORTUNITY OFFICE
FORMAL COMPLAINTS REPORT**

MISC	COMPLAINANT	ORG	SSN	SEX	DATE	BASIS	ISSUE	STATUS
C	VALGENE WARE F09204C0090	CENAB-WA	218-58-4795	M	05-21-92	RACE/ COLOR	TERMINATION	FAD - ND 1 NOV 1993
E	ALAN BRADY F09207C0110	CENAB-WA	224-72-3686	M	09-31-92	HANDICAP(P)	SUSP OF DRIVING PRIVILEGE	EEOC HRNG SCHEDULED 21 MAR 94
C	LOUIS GALLOWAY F09210C170	CENAB-WA	577-59-4686	M	11-02-92	RACE/ COLOR	APPRAISAL TRAINING	EEOC HRNG SCHEDULED 29 NOV 1993
E	CLAY CALLAHAN F09204C0040	CENAB-WA	229-40-9849	M	03-03-93	AGE (60)	NON-SELECTION	CLOSED 3 MAY 1993
C	PAMELA DUNSTON F09304D0070	CENAB-WA	220-88-2749	F	04-13-93	P/HANDI	REMOVAL	APPEALED DISMISSAL TO EEOC
C	WILLIAM MILBURN CIVIL ACTION NO. 90-1947 90-2443 90-2218 90-0207 (LFO)	CENAB-WA	578-70-3499	M			REPRISAL	U.S. DISTRICT COURT
KEY	ND = NO DISCRIMINATION FAD = FINAL ARMY DECISION NSA = NEGOTIATED SETTLEMENT AGREEMENT REJ = REJECTED REQ = REQUEST HRNG = HEARING RELIG = RELIGION							
								IRENE B. TACKETT EEO OFFICER

CENAB-OC

7 January 1994

INFORMATION PAPER

SUBJECT: Allegation of Fraud, Waste and Abuse at the Washington Aqueduct Division as requested by HQ USACE for congressional committee.

PURPOSE: To provide the Commander Information regarding allegations of Fraud, Waste, and Abuse at the Washington Aqueduct.

1. During the past three years there have been approximately four "hotline" type allegations of Fraud Waste and Abuse (FWA) at the Washington Aqueduct Division. These allegations have taken the form of single letters containing numerous individual examples of perceived F.W.A. going back many years.

2. These issues which appear to come from one or two employees have been investigated by the USACE IG. No wrong doing has been substantiated.

3. It should be noted that the PCB issue, which was the subject of Major Torrence's 15-6 investigation, was raised in one of hotline complaints; however, that issue is addressed in the HTRW consultant's report.

PREPARED BY: OMAR M. ZEN

AUTHENTICATION:



Ms. BYRNE. General, is the lead and whatever you are talking about—I know that there was an allegation of PCB dumping, and also some other toxic dumping—but are we talking about the report that—is it Major Torrance is giving the Army Corps of Engineers? Is it Major Torrance?

General GENEGA. Yes, ma'am, he did an investigation under the provisions of Army Regulation 15-6. He was appointed an Army Regulation 15-6 investigating officer. As a piece of his investigation, he had the employees who raised that issue physically point on the ground where the suspected sites were and that is where we did the tests.

Ms. BYRNE. Would it be possible to furnish this committee with Major Torrance's report?

General GENEGA. I don't know of a reason we could not do that, ma'am.

Ms. BYRNE. Okay. Thank you.

[The information received from General Genega follows:]

CENAB-OC

23 December 1993

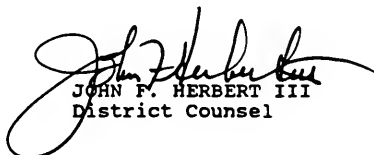
MEMORANDUM FOR District Engineer

SUBJECT: AR 15-6 Investigation Conducted by Major Gerald Torrence

1. I have reviewed the subject report of investigation, and find it legally sufficient.
2. I endorse the Investigative Officer's recommendation.


OMAR M. ZEN
Assistant District Counsel

I concur.


JOHN F. HERBERT III
District Counsel

CENAB-PP-E

23 December 1993

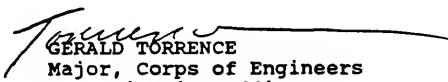
MEMORANDUM FOR RECORD

SUBJECT: Memorandum of Clarification Regarding Washington Aqueduct
AR 15-6 Investigation, 7 through 10 September 1993

1. Reference AR 15-6 w/enclosed memorandum for record, subject: Allegations of Mis-Management, Discrimination, Fraud, Waste and Abuse at the Washington Aqueduct Division (WAD), Baltimore District, Special Enclosure III, undated.

2. This memorandum is to clarify my impression of the phrase, "...something drastic is going to occur" in paragraph 5 of the referenced memorandum. Although no specific threats or definitions were attached to the phrase in question by the employees interviewed, I understood "something drastic" to mean physical altercations between workers and first line supervisors or between workers of different races. At no time did I perceive that a threat of sabotage was implied.

3. The point of contact for this memorandum is Major Gerald Torrence, (410) 962-4347.


GERALD TORRENCE
Major, Corps of Engineers
Investigating Officer

REPORT OF PROCEEDINGS BY INVESTIGATING OFFICER/BOARD OF OFFICERS

For use of this form, see AR 15-6; the proponent agency is OTJAG.

IF MORE SPACE IS REQUIRED IN FILLING OUT ANY PORTION OF THIS FORM, ATTACH ADDITIONAL SHEETS

SECTION I - APPOINTMENT

Appointed by Commander, Baltimore District Corps of Engineers

(Appointing authority)

on 7 September 1993 (Attach Inclosure 1: Letter of appointment or summary of oral appointment data.) (See para 3-15, AR 15-6.)
(Date)

SECTION II - SESSIONS

The (investigation) (board) commenced at the Washington Aqueduct Division at 0730 hours
(Place) (Time)on 7 September 1993 (If a formal board met for more than one session, check here ☐. Indicate in an inclosure the time each session began and ended, the place, persons present and absent, and explanation of absences, if any.) The following persons (members, respondents, counsel) were present: (After each name, indicate capacity, e.g., President, Recorder, Member, Legal Advisor.)

N/A

The following persons (members, respondents, counsel) were absent: (Include brief explanation of each absence.) (See paras 5-2 and 5-8a, AR 15-6.)

N/A

The (investigating officer) (board) finished gathering/hearing evidence at 1430 hours on 9 September 1993
(Time) (Date)and completed findings and recommendations at 1730 hours on 10 September 1993
(Time) (Date)

SECTION III - CHECKLIST FOR PROCEEDINGS

A. COMPLETE IN ALL CASES

	YES	NO	N/A
1. Inclosures (para 3-15, AR 15-6)			
Are the following inclosed and numbered consecutively with Roman numerals: (Attached in order listed)			
a. The letter of appointment or a summary of oral appointment data?	X		
b. Copy of notice to respondent, if any? (See item 8 below)			X
c. Other correspondence with respondent or counsel, if any?			X
d. All other written communications to or from the appointing authority?			X
e. Privacy Act Statements (Certificate, if statement provided orally)?			X
f. Explanation by the investigating officer or board of any unusual delays, difficulties, irregularities, or other problems encountered (e.g., absence of material witnesses)?			X
g. Information as to sessions of a formal board not included on page 1 of this report?			X
h. Any other significant papers (other than evidence) relating to administrative aspects of the investigation or board?			X

FOOTNOTES: 1/ Explain all negative answers on an attached sheet.

2/ Use of the N/A column constitutes a positive representation that the circumstances described in the question did not occur in this investigation or board.

2 Exhibits (para 3-16, AR 15-6)		YES	NO/NA	AZ
a	Are all items offered (whether or not received) or considered as evidence individually numbered or lettered as exhibits and attached to this report?	X		
b	Is an index of all exhibits offered to or considered by investigating officer or board attached before the first exhibit?	X		
c	Has the testimony/statement of each witness been recorded verbatim or been reduced to written form and attached as an exhibit?	X		
d	Are copies, descriptions, or depictions (if substituted for real or documentary evidence) properly authenticated and is the location of the original evidence indicated?			X
e	Are descriptions or diagrams included of locations visited by the investigating officer or board (para 3-6b, AR 15-6)?	X		
f	Is each written stipulation attached as an exhibit and is each oral stipulation either reduced to writing and made an exhibit or recorded in a verbatim record?			X
g	If official notice of any matter was taken over the objection of a respondent or counsel, is a statement of the matter of which official notice was taken attached as an exhibit (para 3-16d, AR 15-6)?			X
3	Was a quorum present when the board voted on findings and recommendations (paras 4-1 and 5-2b, AR 15-6)?	X		
B. COMPLETE ONLY FOR FORMAL BOARD PROCEEDINGS (Chapter 5, AR 15-6)				
4	At the initial session, did the recorder read, or determine that all participants had read, the letter of appointment (para 5-3b, AR 15-6)?			
5	Was a quorum present at every session of the board (para 5-2b, AR 15-6)?			
6	Was each absence of any member properly excused (para 5-2a, AR 15-6)?			
7	Were members, witnesses, reporter, and interpreter sworn, if required (para 3-1, AR 15-6)?			
8	If any members who voted on findings or recommendations were not present when the board received some evidence, does the inclosure describe how they familiarized themselves with that evidence (para 5-2d, AR 15-6)?			
C. COMPLETE ONLY IF A RESPONDENT WAS DESIGNATED (Section 11, Chapter 5, AR 15-6)				
9	Notice to respondents (para 5-5, AR 15-6):			
a	Is the method and date of delivery to the respondent indicated on each letter of notification?			
b	Was the date of delivery at least five working days prior to the first session of the board?			
c	Does each letter of notification indicate —			
(1)	the date, hour, and place of the first session of the board concerning that respondent?			
(2)	the matter to be investigated, including specific allegations against the respondent, if any?			
(3)	the respondent's rights with regard to counsel?			
(4)	the name and address of each witness expected to be called by the recorder?			
(5)	the respondent's rights to be present, present evidence, and call witnesses?			
d	Was the respondent provided a copy of all unclassified documents in the case file?			
e	If there were relevant classified materials, were the respondent and his counsel given access and an opportunity to examine them?			
10	If any respondent was designated after the proceedings began (or otherwise was absent during part of the proceedings):			
a	Was he properly notified (para 5-5, AR 15-6)?			
b	Was record of proceedings and evidence received in his absence made available for examination by him and his counsel (para 5-4c, AR 15-6)?			
11	Counsel (para 5-6, AR 15-6):			
a	Was each respondent represented by counsel?			
Name and business address of counsel:				
(If counsel is a lawyer, check here <input type="checkbox"/>)				
b	Was respondent's counsel present at all open sessions of the board relating to that respondent?			
c	If military counsel was requested but not made available, is a copy (or, if oral, a summary) of the request and the action taken on it included in the report (para 5-6b, AR 15-6)?			
12	If the respondent challenged the legal advisor or any voting member for lack of impartiality (para 5-7, AR 15-6):			
a	Was the challenge properly denied and by the appropriate officer?			
b	Did each member successfully challenged cease to participate in the proceedings?			
13	Was the respondent given an opportunity to (para 5-8a, AR 15-6):			
a	Be present with his counsel at all open sessions of the board which deal with any matter which concerns that respondent?			
b	Examine and object to the introduction of real and documentary evidence, including written statements?			
c	Object to the testimony of witnesses and cross-examine witnesses other than his own?			
d	Call witnesses and otherwise introduce evidence?			
e	Testify as a witness?			
f	Make or have his counsel make a final statement or argument (para 5-9, AR 15-6)?			
14	If requested, did the recorder assist the respondent in obtaining evidence in possession of the Government and in arranging for the presence of witnesses (para 5-8b, AR 15-6)?			
15	Are all of the respondent's requests and objections which were denied indicated in the report of proceedings or in an inclosure or exhibit to it (para 5-11, AR 15-6)?			

FOOTNOTES: 1/ Explain all negative answers on an attached sheet.

2/ Use of the N/A column constitutes a positive representation that the circumstances described in the question did not occur in this investigation or board.

SECTION IV - FINDINGS (para 3-10, AR 15-6)

The (investigating officer) ~~(BOWMAN)~~, having carefully considered the evidence, finds:

1. That the possibility of PCB contamination on Aqueduct property is legitimate.
2. Out of the 24 employees interviewed, only three had some credible knowledge of possible dumping, spilling or leaking of PCB's or other contaminants on Aqueduct property.
3. During the investigation, frequent allegations of waste, fraud and abuse, discrimination and mis-management arose. These allegations were beyond the scope of this investigation but were abundant and consistent enough to cause some concern. The Investigating Officer has prepared a Memorandum for Record included as Special Enclosure Three.

SECTION V - RECOMMENDATIONS (para 3-11, AR 15-6)

In view of the above findings, the (investigating officer) ~~(BOWMAN)~~ recommends:

1. That the Commander, Baltimore District, direct the Chief of the Washington Aqueduct Division in conjunction with the HTRW Branch of the Engineering Division, to employ a private contractor to sample in sufficient quantities, the specified locations identified in Exhibit D for PCB contamination.
2. That the Commander, Baltimore District, consider the information contained in Special Enclosure Three.

SECTION VI - AUTHENTICATION (para 2-17, AR 15-6)

THIS REPORT OF PROCEEDINGS IS COMPLETE AND ACCURATE. (If any voting member or the recorder fails to sign here or in Section VII below, indicate the reason in the space where his signature should appear.)

(Recorder)

[Signature]
(Investigating Officer) (President)

(Member)

(Member)

(Member)

(Member)

SECTION VII - MINORITY REPORT (para 2-13, AR 15-6)

To the extent indicated in Inclosure _____, the undersigned do(es) not concur in the findings and recommendations of the board. (In the inclosure, identify by number each finding and/or recommendation in which the dissenting member(s) do(es) not concur. State the reasons for disagreement. Additional/substitute findings and/or recommendations may be included in the inclosure.)

(Member)

(Member)

SECTION VIII - ACTION BY APPOINTING AUTHORITY (para 2-8, AR 15-6)

The findings and recommendations of the (investigating officer) (board) are (approved) (disapproved) (approved with following exceptions/substitutions). (If the appointing authority returns the proceedings to the investigating officer or board for further proceedings or corrective action, attach that correspondence (or a summary, if oral) as a numbered inclosure.)

Based upon the findings of the hazardous waste investigation, subsequent to MAJ Torrence's recommendations, I have found no indication of deliberate or large scale wrongful disposal of hazardous waste. The Washington Aqueduct Division Chief will consult with the Baltimore District's Engineering Division to determine the appropriate action required by the isolated presence of lead in area #1 as described by the report.

Based upon a thorough investigation of previous allegations by Mr. Lemley of mismanagement and inappropriate behavior by Aqueduct management I do not find sufficient evidence to warrant further investigation or disciplinary action.

Regarding the employee-expressed concerns about discrimination — although allegations have been previously investigated and unsubstantiated, I direct that the Washington Aqueduct Division Chief improve internal communications among leaders and employees and work with the District Equal Employment Opportunity Officer to develop an effective proactive program to address any perceptions or real problems in this area.

Additionally, based upon the investigating officer's verbal discussion with me, I direct that the Washington Aqueduct Division develop a leadership program to ensure leadership training for first and second line supervisors.

[Signature]
J. RICHARD CAPKA
Colonel, Corps of Engineers
Commanding

TABLE OF CONTENTS

Enclosure I	Appointment Letter
Enclosure II	List of Interviewees
Special Enclosure III	Memorandum For Record
Exhibit A	Sworn Statement By Mr. Jeffrey Lemely
Exhibit B	Sworn Statement By Mr. Richard Myer
Exhibit C	Sworn Statement By Mr. Lawrence Arnold
Exhibit C-1	Investigation Officer's Memo to Exhibit C
Exhibit D	Table One: Locations of Suspected Contaminated Sites



REPLY TO ATTENTION OF:

DEPARTMENT OF THE ARMY
BALTIMORE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1718
BALTIMORE, MARYLAND 21203-1718

SEP 7 1993

CENAB-OC (15)

MEMORANDUM FOR MAJ Gerald Torrence, CENAB-PP

SUBJECT: Appointment of Investigating Officer

1. You are hereby appointed as an Investigating Officer pursuant to AR 15-6 to conduct an informal investigation into allegations that PCB's and other contaminants have been improperly disposed of at the Washington Aqueduct Division of the Baltimore District. Details pertaining to these allegations may be obtained from Mr. Omar M. Zen in the Office of Counsel. Mr. Zen may be contacted at (410) 962-3632.
2. In your investigation, use informal procedures under AR 15-6. You will make findings as to whether there is merit to the allegations and attempt to determine the basis for the allegations. All statements taken shall be sworn statements.
3. Submit your findings and recommendations in four copies on DA Form 1574 to this headquarters within 21 days.

J. Richard Capka
J. RICHARD CAPKA
Colonel, Corps of Engineers
Commanding

List of Interviewees

LEMLEY, JEFFERY
MYER, RICHARD S.
GALLOWAY, LOUIS H.
WESSEL, GERALD L.
CURTIN, RICHARD M.
POWERS, ROBERT E. II
NEWTON, JAMES R.
HAZELTON, TYRONE T.
SIKORSKI, JAMES W.
ROSS, ALLEN
ROSE, DONALD R. SR.
ROSE, DONALD R. JR.
BEACH, RAYMOND G. JR.
MILBURN, WILLIAM JR.
DORSEY, JAMES A.
KING, JOHN F.
TYNDLE, LARRY C.
ROYSTER, RICKY C.
WILLIAMS, LAWRENCE A.
FARROW, TONY D.
SCOTT, RUSSEL W.
PENNOYER, CRAIG W.
BRANDTS, PAUL T.
DODGE, CARL

MEMORANDUM FOR RECORD

SUBJECT: Allegations of Mis-Management, Discrimination, Fraud, Waste and Abuse at the Washington Aqueduct Division (WAD), Baltimore District

1. Reference Memorandum for Major Torrence, dated 7 September, subject: "Appointment of Investigating Officer".

2. Although the allegations discussed in this memorandum are beyond the scope of this investigation, they were abundant and consistent enough to warrant noting. It is important to note that these accounts were unsolicited.

3. It is the opinion of the Investigating Officer that a leadership problem exists at the WAD. More specifically, the Investigating Officer believes the problem rests at the first and second line supervisor level. The problem can be described as very poor management, human relations and leadership skills. This problem seems to manifest itself in the form of "racial discrimination" charges by minority employees and "mis-management" charges by white employees.

4. Although the allegations can be classified differently, they appear to be consistent and are summarized below:


- * Supervisors receiving awards, workers are not,
- * Noticeable lack of technical expertise at the 1st line supervisor level,
- * Supervisors appear to exercise a double standard, standards not clear,
- * No job performance counseling,
- * Some complaints of lack of attention for worker safety,
- * Frequent use of vulgarity and verbal threats by supervisors,
- * Poor quality control has resulted in some jobs being redone (waste, fraud, abuse),
- * Poor property accountability (waste, fraud, abuse),
- * Sick Leave Abuse (waste, fraud, abuse),
- * Everyone complained of the Chevalier incident. Mr. Paul Chevalier was a machine shop foreman apparently found guilty of

discrimination. Everyone complains that he was simply moved from one position to another of equal pay grade. A position specially created for him. He was never punished. The workers contend that when a worker is punished, it is public information. There was never any public disclosure of Mr. Chevalier's punishment (perception of a double standard).

5. These accounts were consistent across the board, without regard to race or office. The employees that were interviewed exhibited a sense of hopelessness, very low morale, no confidence in their supervisors, the upper level management of the WAD or the Baltimore District headquarters. They contend that their low morale is fairly prevalent at the WAD. Additionally, there was speculation that if the situation continues, "something drastic" is going to occur. Something drastic was never defined.

6. There was one allegation of money laundering and drug sells in the paint shop. This information was relayed to the Office of Counsel (Mr. Omar Zen). Those individuals complaining of racial discrimination were advised to use the EEOC channels for resolution. The Investigating Officer's handwritten notes and sworn statements related to this memo were turned over to the Office of Counsel (Mr. Omar Zen).

7. The point of contact for this memorandum is Major Gerald Torrence, (410)962-6750.


GERALD TORRENCE
Major, Corps of Engineers
Investigating Officer

SWORN STATEMENT

For use of this form, see AR 190-45; the proponent agency is Office of The Deputy Chief of Staff for Personnel.

LOCATION <u>WASHINGTON AQUEDUCT Division</u>	DATE <u>17 SEPT 93</u>	TIME <u>0730</u>	FILE NUMBER
LAST NAME, FIRST NAME, MIDDLE NAME <u>LEMLEY JEFFREY MICHAEL</u>	SOCIAL SECURITY NUMBER <u>090-46-4697</u>		GRADE/STATUS <u>WG 12/5</u>
ORGANIZATION OR ADDRESS <u>D & E UNIT ELECTRIC SHOP</u>			

JEFFREY M LEMLEY WANTS TO MAKE THE FOLLOWING STATEMENT UNDER OATH:

DURING 1985 I WAS INCHARGED IN THE CLEAN-UP OF P.C.B.'S AT THE WASHINGTON AQUEDUCT. I DO NOT THINK THAT THE CLEAN-UP WAS DONE CORRECTLY. WE HAD TRANSFORMERS THAT HAD P.C.B.'S IN THAT WERENT FLUSHED OUT, WE JUST CHANGED THE OIL IN THEM. SUCH AS THE OLD PUMPING STATION TRANSFORMERS. MR. DAN SHAW TOLD MYSELF AND MR. HOPPE THAT THEY HAD HIGH LEVELS OF P.C.B.'S. THEY ALSO WERE LEAKING ONTO THE CONCRETE FLOOR, THE FLOOR WAS NEVER TAKEN OUT. THE NEW PUMPING STATION TRANSFORMERS WERE LEAKING ONTO THE CONCRETE AND THAT WAS NEVER TAKEN OUT. AT OUR McMILLAN PLANT IN THE NORTH AND SOUTH CLEARWELL BUILDING THE TRANSFORMERS WERE LEAKING ONTO THE FLOOR. THE TRANSFORMERS WERE REMOVED BUT THE FLOOR WAS NOT. BACK AT DALECARLIA THE BOOSTER SUB-STATION TRANSFORMER WERE LEAKING ONTO THE FLOOR AND INTO A FLOOR DRAIN. THE TRANSFORMERS WERE TAKEN-OUT, BUT THE FLOOR DRAIN WAS JUST PLUGGED.

MY MAIN STATEMENT IS THAT I WAS TOLD BY MR. CALLAHAN, MR. DODGE, MR. MURRY, MR. SAUKE, MR. SHUTZ, MR. MARSDEN AND A FEW OTHERS THAT THEY HAD DUMPED OIL ON THE HILL BY #6 WAREHOUSE. I WAS TOLD THAT THEY HAD DUMPED THOUSANDS OF GALLONS THERE OVER THE YEARS. THIS ENDS MY STATEMENT.

EXHIBIT <u>A</u>	INITIALS OF PERSON MAKING STATEMENT <u>J. M. L.</u>	PAGE 1 OF <u>1</u> PAGE(S)
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ADDITIONAL PAGES MUST CONTAIN THE HEADING "STATEMENT OF _____ TAKEN AT _____ DATED _____ CONTINUED." THE BOTTOM OF EACH ADDITIONAL PAGE MUST BEAR THE INITIALS OF THE PERSON MAKING THE STATEMENT AND BE INITIALED AS "PAGE _____ OF _____ PAGES." WHEN ADDITIONAL PAGES ARE UTILIZED, THE BACK OF PAGE 1 WILL BE LINED OUT, AND THE STATEMENT WILL BE CONCLUDED ON THE REVERSE SIDE OF ANOTHER COPY OF THIS FORM.

DA FORM 2823

SUPERSEDES DA FORM 2823, 1 JAN 83, WHICH WILL BE USED.

STATEMENT (Continued)

AFFIDAVIT

I, Jeffrey M. Lemley HAVE READ OR HAVE HAD READ TO ME THIS STATEMENT WHICH BEGINS ON PAGE 1 AND ENDS ON PAGE 1. I FULLY UNDERSTAND THE CONTENTS OF THE ENTIRE STATEMENT MADE BY ME. THE STATEMENT IS TRUE. I HAVE INITIALED ALL CORRECTIONS AND HAVE INITIALED THE BOTTOM OF EACH PAGE CONTAINING THE STATEMENT. I HAVE MADE THIS STATEMENT FREELY WITHOUT HOPE OF BENEFIT OR REWARD, WITHOUT THREAT OF PUNISHMENT, AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT.

WITNESSES:

Jeffrey M. Lemley
(Signature of Person Making Statement)

Subscribed and sworn to before me, a person authorized by law to administer oaths, this 7 day of Sept, 19 93
at Washington Headquarters Division

ORGANIZATION OR ADDRESS

Gerald Torrence
(Signature of Person Administering Oath)

Gerald Torrence

(Typed Name of Person Administering Oath)

ORGANIZATION OR ADDRESS

(Authority To Administer Oath)

INITIALS OF PERSON MAKING STATEMENT

J.M.L.

PAGE 00 PAGES

SWORN STATEMENT

For use of this form, see AR 190-45; the proponent agency is Office of The Deputy Chief of Staff for Personnel.

LOCATION <i>D + C. Idm</i>	DATE <i>9/1/93</i>	TIME <i>0825</i>	FILE NUMBER
LAST NAME, FIRST NAME, MIDDLE NAME <i>MYER, RICHARD SCOTT</i>	SOCIAL SECURITY NUMBER <i>229-90-6831</i>	GRADE/STATUS <i>10-4</i>	
ORGANIZATION OR ADDRESS <i>WAD. 5900 MC CARTHER BLVD. WASHINGTON D.C.</i>			

I, *Richard D. Myer*

WANT TO MAKE THE FOLLOWING STATEMENT UNDER OATH.

Last year in the Fall of 1992. I was told by Jeff Lambly and Carl Doga that about 5 to 10 - years ago that we, to change P.B.C. oil from high Voltage transformers. That the oil that was used oil. P.B.C. was buried on the hill across the street at WAD. The hill is to right next to the playground where rain water run down the hill in to the sewer. It could possibly damage the sewer water. I have seen that fall of 1992 at the Pumping Station that the Corp + Contractor removed two or three transformers that had P.B.C. oil in them. and the fall of 1992. I have seen the Miller Station removed 3 or 4 transformers that had P.B.C. oil in them. I know the P.B.C. oil was in the transformers. Because, they were 340 in yellow sticker P.B.C. 340 in the end of my statement A/C me. at WAD.

Richard D. Myer.

EXHIBIT <i>B</i>	INITIALS OF PERSON MAKING STATEMENT <i>Rich D. Myer. RDM</i>	PAGE 1 OF <i>1</i> PAGES
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ADDITIONAL PAGES MUST CONTAIN THE HEADING "STATEMENT OF *TAKEN AT* DATED *CONTINUED*." THE BOTTOM OF EACH ADDITIONAL PAGE MUST BEAR THE INITIALS OF THE PERSON MAKING THE STATEMENT AND BE INITIALED AS "PAGE *OF* PAGES." WHEN ADDITIONAL PAGES ARE UTILIZED, THE BACK OF PAGE 1 WILL BE LINED OUT, AND THE STATEMENT WILL BE CONCLUDED ON THE REVERSE SIDE OF ANOTHER COPY OF THIS FORM.

DA FORM 2823

SUPERSEDES DA FORM 2823, 1 JAN 66, WHICH WILL BE USED.

STATEMENT (Continued)

AFFIDAVIT

I, Robert J. Myers, HAVE READ OR HAVE HAD READ TO ME THIS STATEMENT WHICH BEGINS ON PAGE 1 AND ENDS ON PAGE 1. I FULLY UNDERSTAND THE CONTENTS OF THE ENTIRE STATEMENT MADE BY ME. THE STATEMENT IS TRUE. I HAVE INITIALED ALL CORRECTIONS AND HAVE INITIALED THE BOTTOM OF EACH PAGE CONTAINING THE STATEMENT. I HAVE MADE THIS STATEMENT FREELY WITHOUT HOPE OF BENEFIT OR REWARD, WITHOUT THREAT OF PUNISHMENT, AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT.

WITNESSES:

Robert J. Myers
(Signature of Person Making Statement)

Subscribed and sworn to before me, a person authorized by I. U. to administer oaths, this 7 day of SEPT, 1993
at the Washington Aqueduct Division

ORGANIZATION OR ADDRESS

Gerald Torrence
(Signature of Person Administering Oath)

Gerald Torrence

(Typed Name of Person Administering Oath)

ORGANIZATION OR ADDRESS

(Authority To Administer Oaths)

INITIALS OF PERSON MAKING STATEMENT

R. J. M.

PAGE 00 PAGES

SWORN STATEMENT			
For use of this form, see AR 190-45; the procuring agency is Office of The Deputy Chief of Staff for Personnel.			
LOCATION	DATE	TIME	FILE NUMBER
	9-8-93	1:55	
LAST NAME, FIRST NAME, MIDDLE NAME	SOCIAL SECURITY NUMBER		GRADE/STATUS
Williams Lawrence Arnold	528-683231		WG-10-5
ORGANIZATION OR ADDRESS			
D+E Electric Shop			
1. <u>Lawrence Arnold Williams</u> WANTS TO MAKE THE FOLLOWING STATEMENT UNDER OATH:			
<p>I have never changed or handled transformer oil since I been with the Corps. Therefore I do not know what they do or have done with it. I've poured solvent into a storage tank which was inhibited a cleaning solvent other than that I know nothing of what or how they dispose of their solvents.</p>			
EXHIBIT	INITIALS OF PERSON MAKING STATEMENT		PAGE 1 OF 1 PAGES
C	L.A.W.		
ADDITIONAL PAGES MUST CONTAIN THE HEADING "STATEMENT OF _____ TAKEN AT _____ DATED _____ CONTINUED." THE BOTTOM OF EACH ADDITIONAL PAGE MUST BEAR THE INITIALS OF THE PERSON MAKING THE STATEMENT AND BE INITIALED AS "PAGE _____ OF _____ PAGES." WHEN ADDITIONAL PAGES ARE UTILIZED, THE BACK OF PAGE 1 WILL BE LINED OUT, AND THE STATEMENT WILL BE CONCLUDED ON THE REVERSE SIDE OF ANOTHER COPY OF THIS FORM.			

DA FORM 2823

SUPERSEDES DA FORM 2820, 1 JAN 60, WHICH WILL BE USED.

STATEMENT (Continued)

AFFIDAVIT

I, Laurence R. Williams HAVE READ OR HAVE HAD READ TO ME THIS STATEMENT WHICH BEGINS ON PAGE 1 AND ENDS ON PAGE . I FULLY UNDERSTAND THE CONTENTS OF THE ENTIRE STATEMENT MADE BY ME. THE STATEMENT IS TRUE. I HAVE INITIALED ALL CORRECTIONS AND HAVE INITIALED THE BOTTOM OF EACH PAGE CONTAINING THE STATEMENT. I HAVE MADE THIS STATEMENT FREELY WITHOUT HOPE OF BENEFIT OR REWARD, WITHOUT THREAT OF PUNISHMENT, AND WITHOUT COERCION, UNLAWFUL INFLUENCE, OR UNLAWFUL INDUCEMENT.

WITNESSES:

Laurence R. Williams
(Signature of Person Making Statement)

Subscribed and sworn to before me, a person authorized by I. O. to administer oaths, this 5th day of SEPTEMBER, 19 93
at the Washington Aqueduct Division

ORGANIZATION OR ADDRESS

Gerald Torrence
(Signature of Person Administering Oath)

Gerald Torrence

(Typed Name of Person Administering Oath)

ORGANIZATION OR ADDRESS

(Authority To Administer Oath)

INITIALS OF PERSON MAKING STATEMENT

L. R. Williams


PAGE 1 OF PAGES

MEMORANDUM FOR RECORD

SUBJECT: AR 15-6 Investigation Regarding Allegations of Improper Disposal of PCB's and Other Contaminants at the Washington Aqueduct Division (WAD), Baltimore District

1. Reference Memorandum for Major Torrence, subject: Appointment of Investigating Officer, dated 7 Sept 1993.
2. On 9 September 1993, Mr. Jeffrey Lemley and Mr. Carl Dodge, (the Electrical Shop, WAD), escorted the Investigating Officer and Mr. Doug Pickering (Deputy Chief, WAD) to the actual sites where transformer oil containing PCB's and battery acid was either suspected or known to have been dumped, spilled or leaked. The locations are identified in Table One, enclosed. The PCB dumping sites identified by Mr. Dodge are categorized as "known sites". Mr. Dodge was a member of the crew which transported old transformers to the location and drained the oil onto the ground in the 1970's. The PCB dumping sites identified by Mr. Lemley are considered "suspect sites". These locations were described and/or pointed out to him by employees of the WAD who are no longer employed by the WAD or currently retired. The PCB spill locations are categorized as "known sites". Mr. Lemley has personally performed maintenance and transformer oil clean up duties at these sites. Mr. Lemley was told by now retired employees of the WAD that batteries were stored and sometimes spilled in the general vicinity of Location Number One (identified in Table One). This site is classified as "suspect".
3. The point of contact for this memorandum is Major Gerald Torrence at (410)962-6750.

Enclosure


Gerald Torrence
Major, Corps of Engineers
Investigating Officer

Enclosure: TABLE ONE, Locations of Known or Suspect Transformer Oil and Battery Acid Dump, Spill or Leakage Sites

<u>LOCATION</u>	<u>DESCRIPTION</u>	<u>SUBJECT</u>	<u>CATEGORY</u>	<u>MARKED</u> ¹
1	Scrap Storage Area left side of Warehouse 6	Battery Acid	Suspect	yes
2	same as above	Transformer Oil	Suspect	yes
3	same as above right side of Warehouse 6	Transformer Oil	Suspect	yes
4	Booster	Transformer Oil leaked into drain ('85-'86)	Known	n/a
5	WAD Pumping Station, Old Transformers 3, 4 & 5	Transformer Oil leaked onto concrete pad. Pad still in place.	Known	n/a
6	Old Pump Station Basement (positioned over finished water)	Transformer Oil leaked onto floor ('85-'86)	Known	n/a
7	McMillan Plant (a) South clear well	Oil Switches leaked	Known	n/a
	(b) Sub-station	Oil switches leaked	Known	n/a
	(c) Pump Station	Transformers leaked and removed. Concrete pad oil stained and cracked.	Known	n/a
	(d) North Clear Well Gate House	Transformers leaked and removed. Concrete floor oil stained.	Known	n/a
8	Scrap Storage Area right side of Warehouse 6	Dumped transformer oil containing PCB's	Known	yes

¹
Note: The only sites requiring "marking" were those in a field location (the scrap storage area). These sites were marked with stakes and engineer tape.

RESULTS OF SOIL QUALITY INVESTIGATION
FOR THE WASHINGTON AQUEDUCT SITE
WASHINGTON, DC

REWAI Project 93596

Prepared for

United States Army Corps of Engineers
Baltimore District
Baltimore, MD

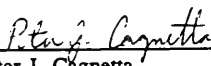
By

R. E. WRIGHT ASSOCIATES, INC.
3240 Schoolhouse Road
Middletown, PA 17057
717-944-5501


December 1993

Respectfully submitted,

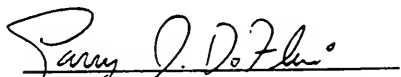
Reviewed by:



Peter J. Cagnetta
Project Soil Scientist



Kent V. Littlefield, P.G.
Project Director



Larry J. DePluri
Project Manager/Environmental Engineer

r.e. wright associates, inc.

EXECUTIVE SUMMARY

R. E. Wright Associates, Inc. (REWAI) has completed the field investigation and laboratory analysis activities to confirm the presence or absence of polychlorinated biphenyls (PCBs) in soil and concrete samples and lead concentrations in soils at the Washington Aqueduct site. REWAI field activities were conducted between November 3 and November 5, 1993. Additional sampling was performed by the United States Army Corps of Engineers (USACE) on December 20 and 21, 1993. The investigation was conducted due to reported allegations that in the 1970's and 1980's, transformer oils and/or battery acids were released at these locations.

A total of 50 surface samples, at a depth of 6 to 12 inches, were collected from 4 separate locations in the vicinity of the No. 6 warehouse located on the Dalecarlia Reservation of the Washington Aqueduct. In addition to the surface sampling locations, a total of nine borings were completed to a depth of six feet or refusal. Interpretation of soil boring logs, collected during the sampling events, indicate that surface soils from zero to one foot below grade across the four locations consist primarily of a yellowish-brown sandy loam textured soil, which is undisturbed at depths greater than one foot below surface.

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Field analyses were performed on all surface samples for PCBs and lead. PCB concentrations of the soil samples were determined by immunoassay test kits. Field analysis for lead was determined by using a portable X-ray fluorescence analyzer (XRF). Samples were also screened for volatile organic compounds (VOCs).

As a result of the initial sampling activities of November 3 through 5, 1993, a total of three confirmatory lead and PCB samples were submitted to Wright Lab Services, Inc. (WLSI) for analysis. The samples submitted to the laboratory were those soil sample locations where PCB and lead concentrations were highest, based on the results of the field analysis. Three additional soil samples were collected by the USACE on December 20 and 21, 1993, and submitted to WLSI. These additional samples were analyzed for PCBs to provide additional confirmation of the PCB immunoassay field screening results in areas which tested positive for detectable concentrations of PCBs. The results of the six laboratory analyses show that PCBs were present in 2 of the soil samples submitted at concentrations of 1.3 and 1.4 milligrams per kilogram (mg/kg). These concentrations are well below current guidance for cleanup of PCB-contaminated soils.

Lead was detected at concentrations ranging from zero mg/kg to 830 mg/kg. A lead concentration of 130 mg/kg was determined in the on-site background sample. The concentrations of lead in all soil samples were below the commonly established cleanup

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levels for total lead of 1,000 parts per million (ppm) for industrial sites. The lead concentration in only one laboratory-analyzed sample was significantly above the site background concentration. A Toxicity Characteristic Leaching Procedure (TCLP) analysis was performed on one of the samples collected by the USACE. Results indicate a concentration of extractable lead at 7.5 mg/l, which is above the regulatory TCLP limit of 5.0 mg/l.

In addition to the soil samples, REWAI collected 10 concrete samples and one water sample from various locations at the Dalecarlia and McMillan water treatment facilities. These samples were submitted to the laboratory for PCB analysis. The results of the laboratory analysis show that PCBs were present in only trace concentrations in the majority of the samples, and at detectable levels of 1 and 13 ppm in 2 of the concrete samples. These concentrations are all below the guidance action level for remediation of PCBs.

Based on the results of the field investigation and further sampling exercises conducted by the USACE, REWAI concludes that no further action is warranted in regards to PCBs at any of the areas sampled, both soil and concrete, at the Washington Aqueduct site. However, based on the aforementioned TCLP results for lead, additional delineation sampling and characterization of potentially contaminated soil should be conducted in the area immediately surrounding sample boring 1D-1-2-1.

Ms. BYRNE. And let me also ask our gentleman from the EPA. We talked about in Virginia notifying the State, but concurrently with your notification, we had electronic media talking about the water system and what was going on and the boil order; right? We had a boil order on the media, on the electronic media, at the same time that you were talking to the State authorities in Virginia?

Mr. LASKOWSKI. Our initial contact with the State authorities started, according to my records, at 1:20 in the afternoon and went through until about 1:35, four different phone calls and we made the announcement at 5 p.m. So it was several hours later.

Ms. BYRNE. But there was also no way for Fairfax residents, in particular, to know whether they would be affected or not by the media reports, because there was no geographic description given of what we are talking about.

Mr. LASKOWSKI. Yes, early on in the crisis, we knew generally where the problems were. I have to admit we didn't have a fine understanding of exactly where the boundaries were for each of the service districts and even after we started responding to the phone calls, we didn't really have the map as accurate as we wanted it. So that is something that I am sure we will be even more accurate in the future.

Mr. ELDER. If I might add, that was a serious handicap in responding to the phone calls at the Council of Governments Information Center that night, beginning around 10 p.m. when the phone bank came into operation, more than half of the phone calls that we received had to do with the jurisdictional area or the water distribution system area, and we were very handicapped in not having an accurate map until very late that night.

Ms. BYRNE. You, Mr. Laskowski, you have also been responsive to a couple of letters sent by Senators Warner and Robb and Congressman Wolf about the situation that had dumping on the sides of reservoir that went into the aqueduct. And your letter states that there is no record of a toxic spill or no record of improper disposal of toxic chemicals. Do you really think there would be a record of improper disposal of toxic chemicals?

Mr. LASKOWSKI. Sometimes we have tips on that. I have to admit, not always, perhaps.

Ms. BYRNE. So, what your letter is assuring both Senators Robb and Warner, is that there is no record of improper disposal of toxic chemicals, but this can't be taken as an assurance that there hasn't been any improper disposal; can it? You are just telling us in your correspondence that there is no record of toxic disposals.

Mr. LASKOWSKI. As you know, whenever there is illegal dumping or disposal, we don't always know about it. But I assume what you are reading from is us saying we don't really have a record of anything that indicates that.

Ms. BYRNE. Right. Right.

Would you be willing to go back, given what seemed to be a whole series of problems with this aqueduct, and look at this more carefully, beyond just the recordkeeping capabilities of disposal of toxic chemicals?

Mr. LASKOWSKI. Certainly, I would have to learn more about it, but if there is some questions you have there, we will gladly look at it.

Ms. BYRNE. Well, I think given the general statements about the questions that have been raised and Major Torrance's reports, and some other things, that over the years, before we knew too much about these things, there had been some dumping. And that dumping apparently could or could not, depending on where it is, go into the reservoir; that we are not treating for specifically—that there is no test, like bacteria, to treat for PCBs, or for lead. And so, I would request EPA to go beyond what the record might say in terms of no record of toxic dumping and look a little bit more closely into this issue, if they could.

Mr. LASKOWSKI. We will gladly do that.

Ms. BYRNE. Thank you.

Thank you, Madam Chair.

Ms. NORTON. Thank you very much, Ms. Byrne.

Major General Genega, in its October 5th emergency order, the EPA ordered the Corps to have a qualified independent contractor perform a comprehensive evaluation within 45 days of the order. Was that done?

General GENEGA. No, ma'am, that was not done. That is the October 5th emergency administrative order given to us by EPA. We sat down several days after that to make sure that we understood all of the provisions of that letter and were in fact prepared to provide, in most cases, records based on our joint discussions with EPA.

At that time, we determined, with EPA's concurrence, that it would be better to look at the records to determine if a comprehensive performance evaluation was, in fact, required. EPA held that requirement then in abeyance, pending the results of the record review. They contracted with SAIC, Incorporated, to review those records, which we provided.

On the 6th of December, they directed us to conduct the comprehensive performance evaluation based on the results of that review, which were inconclusive, but just determined that a more thorough review was, in fact, in order. I would point out again that the comprehensive performance review has been done in the past, and in the case of some of the capital improvements that they recommend, these are longer-term things. So, in fact, we are still executing some recommendations from the previous comprehensive performance evaluation. The one based on that 6th of December order is the one that we have underway at the moment.

Ms. NORTON. The December 6th order has a telling date to it. Was there any relationship between the go ahead on the order and the crisis that was upon the system?

Mr. LASKOWSKI. No, it was a happenstance that it seemed to be unfolding at the same time.

Ms. NORTON. Had such an evaluation taken place before the October emergency order, do you think that any part of what happened here might have been eliminated?

Mr. LASKOWSKI. It is difficult to say. I think most of our recommendations are going towards more long-term solutions. My guess would be probably not. It probably would not have impacted it, but it is rather difficult to say.

Ms. NORTON. What is the difference between that emergency order and the study that is now going on by the outside independent expert?

General GENEGA. That is the same study, ma'am. It is exactly the same study. Now, based on the happenings of the 6th, 7th and 8th of December, I would suspect that it is probably fair to say that the scope of work for that contract is slightly different than it would have been absent that circumstance. I don't want to put words into Mr. Laskowski's mouth, but we had that under the belt when we were sitting down and writing the scope of work that we are writing with the contractor. So that influenced it, but the decision to go ahead with it was separate from this incident.

Mr. LASKOWSKI. That is correct. And last week we worked on the scope of work with the Corps of Engineers and they inserted some additional things that we wanted them to look at.

Ms. NORTON. What additional things?

Mr. LASKOWSKI. One of the things that I recall in our discussions—and I don't have the detailed records with me—but I asked them to look at what truly would be a state-of-the-art plan for the District, my feeling being that if we are in the Nation's Capital, we all ought to have a state-of-the-art plan and lay out the options to the Congress.

Ms. NORTON. But that is a part of the study one might have done even without this occurrence. I wonder if there is anything more directly related to this occurrence that made its way into the scope of work as result of this occurrence or are you simply doing what you were going to do anyway?

Mr. LASKOWSKI. What we are talking about is a more long-term plan. We also have an investigation underway that is going to look at what happened and make recommendations as to how to avoid that in the future; that is a separate study.

Ms. NORTON. Let me get this straight. The investigation that is going on now is being conducted by whom?

Mr. LASKOWSKI. There is a series of investigations. One I just referred to is the EPA is doing an independent investigation to tie down exactly what happened, to the best of our ability, during the crisis. And that is something that EPA has undertaken. I think that the Corps has undertaken their own investigation of the same thing. But we decided to do an independent investigation specific to the crisis we just went through.

Ms. NORTON. This is an independent, outside investigation going on with respect to this crisis that involves neither the EPA nor the Corps; is that correct?

Mr. LASKOWSKI. No, this is an investigation by EPA to determine what happened.

General GENEGA. And then there is the investigation, the ongoing one by the Commander, which I indicated the preliminary results to you. That would also include, which EPA's might not, specific actions which the investigating officer might recommend and the Commander might then direct in conformance with personnel regulations specifically directed towards operation personnel.

Ms. NORTON. Well, gentlemen, I must tell you that I don't regard any of those as independent, outside investigations. I thought there

were outside engineers who had nothing to do with anybody in the government, who were looking into this particular incident.

General GENEGA. Yes, ma'am. That is the peer review that I mentioned and that is the operator of another major metropolitan water plan who is coming in and who has no responsibility for the operation of our plant. In my oral statement, I indicated that he was coming in to do that review and that would be done by the 1st of January. That is separate from the comprehensive performance evaluation which Mr. Laskowski was mentioning.

Ms. NORTON. Now, the descriptions in the press were of independent engineers. Not until now did I know that they had to do with any other water treatment plant. What other water treatment plant?

General GENEGA. It happens to be the City of Norfolk—I am sorry, Newport News, not Norfolk.

Ms. NORTON. Does the City of Newport News come under Region 3 of the EPA?

Mr. LASKOWSKI. Yes, it does.

Ms. NORTON. With all deference, gentlemen, I do not regard that as an independent audit. Those people are connected to the government in a very material way. I don't know them. I don't want to cast any aspersion on them, but that was not the impression that was left by the press. The impression was left that there were non-government connected engineers who would be looking into this incident in particular.

General GENEGA. That is the comprehensive performance review. Those are nongovernmental personnel.

Ms. NORTON. That is right. And that turns out not to be this incident.

General GENEGA. Yes, ma'am, but it does include this incidence also. We have that experience under our belt and we have reviewed the statement of work and revised it with that under our belt.

Ms. NORTON. The comprehensive review is being done by whom?

General GENEGA. It is being done by a contractor, the name is Malcolm Pirnie, Incorporated, ma'am; they are a private entity with whom we are contracting.

Ms. NORTON. Is the entire episode at Dalecarlia which resulted in the boil-water alert a part of their scope of work or not?

General GENEGA. Yes, ma'am, they are required to review our operation and all the results of our operation, including that incident with a review, towards determining what management, operational or physical improvements we might make to those processes. So I think the answer to your question is yes.

Ms. NORTON. I wonder if you would provide the committee with the scope of work that the outside, independent auditor has been given.

General GENEGA. We will be happy to do that, ma'am.

[The information received from General Genega follows:]

**EPA REQUIRED "EXAMINATION OF DALECARLIA AND
MCMILLAN WATER TREATMENT FACILITIES"**

**SCOPE OF WORK
TO CONDUCT A
COMPREHENSIVE PERFORMANCE EVALUATION**

The Contractor shall conduct a Comprehensive Performance Evaluation (CPE), emphasizing an investigation of the areas listed below. The CPE shall use the EPA "Handbook: Optimizing Water Treatment Plant Performance using the Composite Correction Program" as a general set of guidelines. The Contractor shall make recommendations, where appropriate, for improvements in treatment and monitoring programs. The Contractor shall rank improvements in terms of likely impact on the quality and safety of finished water.

A. WATER QUALITY:

The contractor shall investigate the circumstances surrounding the 8 December 1993 Environmental Protection Agency's emergency advisory to boil the water produced at the Dalecarlia water treatment plant. During the period 5 December through 8 December 1993, high turbidity levels, exceeding EPA standards, were experienced. The contractor shall investigate the cause of this event. The investigation shall include, but shall not be limited to, analysis of raw and finished water quality data, as well as in-process test results. The contractor shall also evaluate the current water quality test methods, and the procedures for notification when specified limits or thresholds are exceeded. The contractor shall make recommendations to prohibit the recurrence of this type of event in the future. The results of this investigation shall be documented in the CPE report.

B. PLANT ADMINISTRATION:

The Contractor shall investigate the administrative performance and organization of the Washington Aqueduct Division. Recommendations shall be made where appropriate to improve the administration and management of the Division. As a minimum the following elements shall be assessed for administrative factors limiting performance:

1. Organizational Structure
2. Staffing Adequacy
3. Staff Training
4. Personnel Management and Supervision
5. Working Conditions
6. Safety of Working Conditions
7. Financial Planning and Budgeting
8. Utilization of Resources
9. Equipment Condition and Adequacy
10. Regulatory Compliance
11. Cost of Doing Business
12. Quality Control/Internal Evaluation and Reaction Procedures
13. Standard Operating Procedures
14. Material (Chemicals) Inventory Control Process

C. FILTERS:

1. Filter run times

The contractor shall examine current and past data/procedures for determining the frequency for filter backwash. Recommendations shall be made concerning alternative methods of determining frequency of backwash, including head loss, turbidity increase and particle counting. The feasibility of all methods should be evaluated.

2. Recycling of backwash water

The contractor shall investigate current methods for recycling of filter backwash water. For example, the routing of filter backwash water through the plants should be examined, and the effect of cyclical introduction of the water into the Dalecarlia and McMillan Reservoirs should be evaluated. Methods of addition of coagulant to this water should also be evaluated. The effect of recycling backwash water on finished water quality should be evaluated and recommendations should be made concerning the appropriateness of continuing the practice of recycling backwash water under different treatment scenarios. Alternatives, including NPDES (National Pollutant Discharge Elimination System) discharge to sanitary sewers, should be evaluated and a discussion of feasibility of alternatives should be included.

3. Filter to waste

The contractor shall investigate whether the absence of the capability to divert filtered water to waste affects plant performance. The critical period immediately following a filter being returned on line should be evaluated to determine

whether finished water quality is adversely affected. This shall be based on data recently submitted to EPA, and validated by several filter-to-waste verification runs. The final report should make recommendations, both short-term and long-term, for reducing the effect, if any, that the absence of filter-to-waste capability has on plant performance. The report should also discuss the feasibility of modifying both plants to include a filter-to-waste capability.

4. Filter bed composition

The contractor shall conduct an analysis of filter media in ten (10) filters, including core samples, assessing the possible impact of current procedures on finished water quality. Any possible impact on finished water quality from filter media composition or any extraneous materials should be discussed in the report. The contractor should recommend any necessary upgrades in filter media. If mudballs are found to be present in the filter media, the contractor should make recommendations specific to remediation of this problem, including a recommendation concerning any needed improvements to the existing surface wash capability. The contractor should also recommend a program for routine inspection and replacement of filter media and support.

5. Filter maintenance procedures

The contractor shall examine current procedures for returning filter to service after maintenance. The contractor should recommend any necessary improvements to the current procedures. The contractor shall also recommend turbidity and bacteriological monitoring procedures as part of this process and investigate the feasibility of incorporating particle counting into this process.

D. PRIMARY COAGULANT:

The contractor shall investigate current primary coagulant addition practices, including dosage rates, locations chemicals used and methods for monitoring and controlling dosage. The contractor shall recommend any changes that would improve finished water quality, and include a discussion of the feasibility of any recommended changes.

E. SCREENING AT INTAKE:

The contractor shall investigate the status of screening of source water. The contractor shall investigate whether the presence of eels that may pass through current screening have

a detrimental impact on filter performance. The contractor shall make recommendations for improvement of the current screening process and discuss the feasibility of such improvements.

F. SETTLING BASINS AND RESERVOIRS:

The contractor shall analyze the settling basins and reservoirs used by the system. The contractor shall assess whether current settling capability is sufficient, and whether current sediment deposits affect plant performance. The contractor shall make recommendations and suggest alternatives for any necessary upgrade and investigate possible means of sludge removal from pre-settling and settling basins if sludge removal is necessary. The contractor shall also evaluate the feasibility of any suggested improvements.

The contractor shall provide recommendations on any additional investigation determined to be needed.

The contractor shall provide a recommendation on whether or not a Composite Correction Program (CCP) should be implemented.

An interim report and action plan shall be presented within 30 days after notice to proceed. The CPE shall be completed and a report submitted within 75 days after notice to proceed.

**MODERNIZATION PROGRAM
DALECARLIA AND MCMILLAN WATER TREATMENT PLANTS
WASHINGTON AQUEDUCT DIVISION
U.S. ARMY ENGINEER DISTRICT, BALTIMORE
CORPS OF ENGINEERS**

The contractor shall develop a conceptual plan for the modernization of the Washington Aqueduct (i.e. State-Of-The-Art). The modernization plan should include, but not be limited to, identification of equipment, treatment processes, instrumentation, and monitoring systems needed for a state-of-the-art water treatment plant. Consideration shall be given to the present plant configuration and the current capital improvement plan. A time-phased plan, preliminary cost estimates and other resource requirements shall be provided.

1. Define a State-Of-The-Art Water Treatment System relative to raw water source characteristics, reliability requirements, and distribution system water quality goals.
2. Define the current status of the Dalecarlia and McMillan Water Treatment Plants.
3. Identify the variances that exist between a state-of-the-art water treatment plant and the Dalecarlia and McMillan plants.
4. The contractor shall develop a conceptual plan to upgrade the Dalecarlia and McMillan Water Treatment Plants to comply with state-of-the-art capability. The contractor's plan must allow for maintaining the present water supply during the implementation of this plan. This plan shall also take into account all Federal, State, and Local regulations. The contractor shall prepare preliminary cost estimates to identify all costs associated with implementing the plan including, studies, engineering design, construction, training, and operation and maintenance. The cost estimate shall reflect January 1994 price levels.
5. The contractor shall identify any anticipated changes, if any, to Safe Drinking Water Act (SDWA) regulations, and develop additional upgrade requirements which may be necessary for the water treatment system to meet future SDWA regulations.
6. The contractor shall recommend periodic review intervals for reviewing and updating the modernization plan to reflect the latest state-of-the-art water treatment plant technologies.
7. A draft report shall be submitted 15 February 1994. Government review comments will be provided by 28 February 1994. A final report shall be submitted 15 March 1994.

Ms. NORTON. Thank you very much.

Here we have two Federal entities dealing with one another, and Federal regulations do permit the Corps to deal with the EPA when there are violations. Other jurisdictions, of course, must automatically comply or face EPA fines; is that the way it works?

Mr. ELDER. Simply stated, that is correct.

General GENEGA. We are not subject to fines, ma'am.

Ms. NORTON. I understand that.

General GENEGA. And I know of no special requirement to negotiate and I know of no case where we have not done what EPA has directed us to do.

Ms. NORTON. Mr. Laskowski, when there are violations, you issue an order and, of course, no fines. That wouldn't accomplish much here. It would be a transfer of one part of the budget to another. But when you issue an order, do you get the same kind of response from the Corps that you get from other jurisdictions—immediate compliance—even though there is no further sanction that is possible?

Mr. LASKOWSKI. I am satisfied with the orders that we issue that that is, in fact, the case. That we have got that immediate response and the Corps acted in good faith to try to come into compliance as soon as possible.

Ms. NORTON. In this incident, I am asking you in the larger case.

Mr. LASKOWSKI. Yes, yes, I could say that we try to treat Federal facilities and governmental entities the same as we would anyone else and we expect that kind of compliance. And, in fact, the Corps has been very responsive along those lines.

Ms. NORTON. Major General Genega, what is the operating budget for the Corps' Washington Aqueduct Division?

General GENEGA. The operating and maintenance budget this past year was about \$19 million.

Ms. NORTON. When and by whom are financial audits done?

General GENEGA. There are a series of financial audits. The Army Audit Agency several years ago audited our operations. The Internal Auditor in our Baltimore District, performs audits of various pieces, and then, of course, our Capital Improvements Plan, not a part of that budget, but they are submitted through the D.C. Government, through OMB to the Congress and get scrutiny in that process.

Ms. NORTON. What scrutiny has the Corps or its budget been subjected to?

General GENEGA. That budget is submitted with the D.C. Government's budget, through OMB to the Congress, to the committee that deals with the D.C. Government. And is a part of the overall D.C. budget.

Ms. NORTON. Does this budget come entirely from customers?

General GENEGA. Yes, ma'am.

Ms. NORTON. Does the Corps consult with the various customer jurisdictions before putting in its budget or before or after taking any action with respect to their jurisdictions?

General GENEGA. We do consult with the jurisdictions with regard to the Capital Improvements Program. In fact—

Ms. NORTON. Do they have any say in what that Capital Improvements Program consists of?

General GENEGA. I would say they have influence on it, ma'am. They do not have, if you will, a veto on it or a direct decision that says, no, we will not do this. We have a 10-year Capital Improvements Program going on, and I think that the jurisdictions are aware of contents of that Capital Improvements Program.

Ms. NORTON. And have concurred in it? Is there any formal mechanism for them to concur in it? They pay for it.

General GENEGA. Yes, ma'am they do. To my knowledge, they have not objected to it. I think it would be unfair to say—I probably could not show you a piece of paper that said they formally concurred in it.

Ms. NORTON. Does the Corps foresee any difficulty with the customer jurisdictions being able to pay for future improvements that are included in your 10-year plan?

General GENEGA. I don't know of any particular difficulty, Madam Chairwoman, but the system is such that since we, the Army Corps of Engineers, do not have another source of money, we require the money up front to do those kinds of improvements. So it could well be possible that a jurisdiction like Arlington County or the D.C. Government might have some difficulty coming up with that money up front, but I don't know the particulars of that.

Ms. NORTON. I have a bill that I hope will be included in the Clean Water Act that relates to the watersheds around the country. Has the Corps established storm-water pollutant reduction goals for Dalecarlia, Georgetown and McMillan Reservoirs?

General GENEGA. No, ma'am. Those reservoirs are, in fact, earth-embankment reservoirs and the watershed is relatively small. On the other hand, of course, the watershed of the Potomac River is relatively large. We do not have a comprehensive view of the sources of any pollution in that Potomac watershed.

Ms. NORTON. Mr. Laskowski, do you know the sources of pollution in the watershed?

Mr. LASKOWSKI. There has been various studies undertaken as part of the Chesapeake Bay Program and other studies over the years. I think it is fair to say that we have information that could give estimates of some sources of pollution. I don't have them with me. I didn't have a chance to collect them over the weekend, but we could get more information on that. Basically, it is things like point sources from some industry and municipalities and other waste-water treatment plants. It is runoff from farms and urban areas. But I don't have the exact percentages.

Ms. NORTON. Has that been increasing in the watersheds in this region, particularly the Potomac watershed?

Mr. LASKOWSKI. I don't have any data to show that it has been increasing. I suspect, if anything, it has been probably—hopefully, been decreasing, because there are programs being put in place to try to control runoff. But I don't have the data with me today.

Ms. NORTON. Was the EPA involved in the development of the Corps' Capital Improvement Program, Mr. Laskowski or Major General Genega?

Mr. LASKOWSKI. It is my understanding that we are given a chance to comment on the improvements and we review them to see if they are consistent with what is required by the regulations

and the law upcoming. So we are given that opportunity to provide those comments.

General GENEGA. Yes, ma'am, I would agree with that. For example, the previous comprehensive performance evaluation that we had done by the outside contractor, the results in those recommendations were reviewed by EPA and we are doing those things with their knowledge and essentially approval of those actions.

Ms. NORTON. Mr. Laskowski, an important distinction has been made between the water treatment system and the distribution system, which is in the control of the local jurisdictions themselves. Does EPA test the water in the distribution system?

Mr. LASKOWSKI. Not normally. As I understand, the Corps of Engineers does that testing and provides the results to the District Government. We may get involved in an emergency situation with split samples or take some additional samples, but on an ongoing basis, EPA does not do that testing.

Ms. NORTON. Major General, you will recall that fecal coliform was found at Woodson Junior High School in Northeast Washington. We were told it was confined to that location and people in that location were alerted.

General GENEGA. Yes, ma'am.

Ms. NORTON. How could it have been confined to one location if it comes through the distribution system?

General GENEGA. Ma'am, at the same time that that test was taken, there were tests taken at plants and in other locations throughout the distribution system. For example, in the distribution system, we take 210 tests per month. Based on the analysis of those other tests, which were negative, the determination was made by the EPA that that was the only portion of the system that was affected. The other portions of the system tested negatively and thus were not affected.

Ms. NORTON. What was the source of the fecal coliform contamination at Woodson?

General GENEGA. I don't know that we know that, ma'am. I will defer to EPA.

Mr. LASKOWSKI. I am not sure we could say with certainty, but there is some speculation that at that source I believe the school had been shut down for a considerable time and there may have been stagnant water in the pipes for some time and there might have been some regrowth that happened there. That is our speculation.

Ms. NORTON. There were instructions to the District of Columbia, then, following the discovery of the fecal coliform in Woodson Junior High School; has the District complied with that order?

Mr. LASKOWSKI. They have complied with that order, yes.

Ms. NORTON. Is the EPA aware of any violations in any part of the public water distribution system serving the Washington metropolitan area?

Mr. LASKOWSKI. I believe just the ones that were mentioned previously, that there were violations in the system, and there was one in the Arlington area, I believe, around June; the other one in September at the Woodson School, and as was mentioned in October at the Dalecarlia Plant that was contained just to the plant.

Ms. NORTON. You don't see anything systemic here in the water supply coming out of the Northeast incident?

Mr. LASKOWSKI. Well, we are concerned that we had some situations here, and we have to look at the plant more closely, which we are doing. We have to look at the flushing programs that the District of Columbia has for its distribution system and that is underway in compliance with our order. So I think it is fair to say we are concerned about it, and I think we and the Corps and the District are addressing those problems.

Ms. NORTON. How is the water coming out of these plants rated? Out of this immediate jurisdiction, how is it rated compared with other jurisdictions around the country? Are we in the middle? Are we very good? Are we very poor? I would like your frank evaluation of that, if you would.

Mr. ELDER. Madam Chairwoman, we evaluate compliance with EPA's standards for drinking water. We do not do a plant-by-plant comparison. We look at national compliance statistics.

Ms. NORTON. I didn't ask for a plant-by-plant comparison. I know that water all over the country differs vastly in its quality. I am trying to find a characterization for the quality of the water in this immediate region affected by these plants.

Mr. ELDER. If you look at the last couple of months, I would say that the quality of the water is below average compared to the rest of the country.

Ms. NORTON. Of course, it wouldn't be fair to look only at the last couple of months. I mean compare the water in this region with the water in New York—for example, New York City, another large city.

Mr. ELDER. Very difficult to compare, ma'am, because New York City does not have any filtration for any of their drinking water supplies at the present time. They just rely on disinfection and rely on the protection from the watershed both in the Catskill-Delaware area, which was the reservoir system. There would have to be—

Ms. NORTON. Why would that make it difficult to say whether the water that comes out of the tap in another city is better or worse than the water that comes out of the tap in this immediate area.

Mr. ELDER. We have concerns about the quality of water coming out of both systems at the present time.

Ms. NORTON. Mr. Elder, are you saying that the water in the United States of America—whether we are talking about Milwaukee, New York, or the District of Columbia—is all of equal quality?

Mr. ELDER. No, it is not, ma'am. I am not saying that it is of equal quality. There are 60,000 community water supplies in this country. Each of them has a different quality of water that they are providing to their customers at any given time.

Ms. NORTON. Is the quality of the water in the region more related to the state of the plant, or is it more related to runoff and other natural contaminants that may be in the water?

Mr. ELDER. Both of them are extremely important. The watershed, as well as what goes on at the water treatment plant, can dominate a given situation. In this case the watershed quality in terms of the 14 inches of rainfall that had occurred two weeks prior to this particular incident, I think, was a very major factor in

terms of the level of turbidity in the raw intake water coming in the Dalecarlia sedimentation base. Then, when you combine that with some operational problems, that is what led to the high levels of turbidity that led us to issue the boil-water alert.

Ms. NORTON. Finally, I would like to ask all three of you to comment on what you think most needs to be done in this region to improve the quality of the water.

General GENEGA. From my perspective, ma'am, I would say that we need clearly to tighten some internal procedures; that is ongoing. We need to conduct the review, this independent review that I mentioned, both of them, both the peer review and the independent contractor, Malcolm Pirnie, and comply with what recommendations made by that contractor that EPA blesses as prudent. I see that as our course of action and what we need to do in both the near and the long term.

Ms. NORTON. Mr. Laskowski.

Mr. LASKOWSKI. Yes, ma'am, I would agree with the General, that we have to look at the plant operations, at the distribution system, at the studies that are currently being done, and to determine how best to improve the operations, for instance, that the plant includes automation. It may include things like training, but we have to take those into consideration and put them in place, and I think that is probably the biggest need at this time.

Ms. NORTON. I want to ask if any of my colleagues have any more questions. Mr. Petri?

Mr. PETRI. Just one follow-up question for Mr. Laskowski. You are a career civil servant of our country?

Mr. LASKOWSKI. Yes, sir.

Mr. PETRI. Who do you report to? Who is politically accountable, a political appointee in your department?

Mr. LASKOWSKI. Right now it is Administrator Browner.

Mr. PETRI. And did you notify Administrator Browner, and sign off on the notice to the public of the boiled-water alert, or is this something that was made at the career level?

Mr. LASKOWSKI. Well, when we were considering this, it was mentioned to Administrator Browner that we were on the track to do this, and as I understand it, she was okay with that. I didn't personally brief her ahead of time, but the folks at headquarters who knew the situation did.

Mr. PETRI. So she or her office was kept informed of this—and she did sign off on this?

Mr. ELDER. No, sir. When Stan Laskowski and I had a conversation around 1 o'clock on December the 8th and I was aware that he was going to make the decision to go ahead with the boil-water alert, I informed my boss, who is a political appointee with Senate confirmation, Robert Perciasepe, and he informed Administrator Browner's office. There was no requirement for a sign-off or a clearance from the political level of the agency.

Mr. PETRI. Well, as you review your procedures, I would suggest that where you have a two- or three-day window of decision-making, you might consider keeping the political people informed who are participating in that decision, since you are notifying a million people of something and they are going to end up being held accountable.

It doesn't happen to be my administration, but I am sure they would appreciate—I understand if it is a fast-moving emergency, boy, you better make that decision and get the word out and people have to clear out or whatever they have to do. But if it is a slow-rolling emergency with some judgment calls and with some pluses and minuses and so on, I think some input from the people who are politically accountable might be of use in making sure you come up with a good decision. Thank you.

Ms. NORTON. Mr. Moran.

Mr. MORAN. Thank you, Madam Chairwoman. Mr. Laskowski, you were notified for the first time on December 8 that we had a potential crisis.

Mr. LASKOWSKI. Sir, it was December 7 at 2:00 p.m. that we were first notified that there appeared to be problems at the plant.

Mr. MORAN. Okay. General Genega, you were notified approximately one day earlier that you had a potential crisis, as I understand it; is that correct? December 6?

General GENEGA. No. I was notified on the morning of the 7th that we, in fact, had established a violation, an EPA-reportable violation, and that we were in the process of reporting that to EPA.

Mr. MORAN. The violation—so were they notified on December 7? You were notified on December 7, but I was told December 8 is when you were notified?

Mr. LASKOWSKI. No, sir. 2:00 p.m. December 7.

Mr. MORAN. So the violation occurred on December 6, as I understand it; is that correct?

General GENEGA. In hindsight, yes, sir. The increase of the high raw water turbidity which required the addition of aluminum sulfate, which did not happen, occurred late in the afternoon, about 5:00 p.m. to 7:00 p.m. on the 6th. The violation readings occurred at 1:00 a.m., 2:00 a.m. and 3:00 a.m. on the 7th.

Those were the violation readings which were then evaluated the morning of the 7th by the supervisory personnel at the aqueduct who reported to me, and then the EPA at 2:00 p.m.

Mr. MORAN. Violation readings were taken—readings were taken, but were not in violation prior to that, or is that the first time that violation readings were reported?

General GENEGA. That is correct. That is the first time, because that is the first time that the individual reading exceeded 5 Turbidity Units, that is 1:00 a.m., 2:00 a.m. and 3:00 a.m.

Mr. MORAN. So we can be assured that it did not exceed it prior to 1:00 a.m. on December 7?

General GENEGA. It did not exceed 5 Turbidity Units, yes, sir, that is correct.

Mr. MORAN. And it was being taken regularly?

General GENEGA. Yes, sir, it was being taken each hour.

Mr. MORAN. All right. So that is reasonably fast response, it would seem. Although the crisis had probably already peaked by the time we actually found out about it, because the turbidity levels were going down.

Now, what I would like to understand is in retrospect, does it appear that there were indications that we were approaching a crisis level at the plant on that weekend after we had had that enormous rainfall? When you look back upon it, do you think there was an

opportunity to have gotten advanced notice and to have alerted people in a more prompt fashion?

General GENEGA. I don't believe so, sir, although I will defer to EPA for the notification portion. But with regard to the heavy rainfall, the increasing turbidity as a result of the heavy rainfall is not an unusual occurrence. What was unusual was our failure to correct, by the addition of aluminum sulfate. So in and of itself, the rising turbidity in the raw water was not an unusual circumstance.

Mr. MORAN. So we are really talking about human error then, not adding enough aluminum sulfate when it was called for. That is really the problem that gave rise to the alert and the disruption of lives of hundreds—well, actually more than a million people. It was human error then?

General GENEGA. That is correct. As I commented to Madam Chairwoman in response to her question a little earlier, sir, when you were absent from the room, I clarified that by saying that we cannot say with 100 percent assurance that the operational equipment or the plant did not contribute to the problem. We should be able to determine that, I believe, when we are completed with the comprehensive performance review. So I say human error was a factor, it clearly was a very significant factor, but there may have been other contributing factors that I am just not able to address at the moment.

Mr. MORAN. How old are some of the lines under the District and that go to Northern Virginia? I am told that these date way back almost to the turn of the century. Is that true? How old is the oldest equipment that you have operational?

General GENEGA. The oldest conduit, for example, that carries water some nine miles from the Great Falls area, where it is picked up in the Potomac and carries it some nine miles across Cabin John Bridge to the Dalecarlia Reservoir, dates back to 1852. The construction started in 1852.

Mr. MORAN. Now, there have been substantial improvements in materials and engineering since 1852, one would expect, over the last 140 years.

General GENEGA. Yes, sir.

Mr. MORAN. You have called for improvement to some of this material, some of the infrastructure?

General GENEGA. Yes, sir, and we have done literally a continuous program of capital improvements. For example, the building you mentioned the Dalecarlia Treatment Facility was, in fact, constructed in 1926. We just completed updating the control system from a manual mechanical control system to a modern day electronic control system, both in part to update it, and partially to save operation and maintenance cost of repairs on the older system.

Mr. MORAN. If we don't get the money that has been requested for capital improvements, would you anticipate that it will fail at any time, or is it good indefinitely, as long as you make minor improvements over time?

General GENEGA. To my knowledge, for the foreseeable future, that plan is good and we have been meeting the EPA standards with regard to water. We continue to make the capital improvements, just simply because things wear out, I would say.

For example, capital improvements include replacing the roof on the building, something as simple as that, and lots more exotic things like electronic controls and piping and replacement of valves that wear out over the years.

Mr. MORAN. I will just ask a few things that particularly affect my constituents, because about two-thirds of the District, several hundred thousand people were directly affected by this, but they were told in Virginia to boil water for 10 minutes. In D.C., I was told they were instructed to boil it for about a minute. Why the discrepancy?

General GENEGA. I would have to defer to EPA.

Mr. MORAN. I assume you weren't any more concerned about the health of Virginians than D.C. residents.

Mr. ELDER. No, sir, not at all.

Mr. LASKOWSKI. In the early going there was differences of opinions in how long you had to boil water, and EPA's program that has been operating under the guidance where you go—you boil it vigorously for one minute. Evidently, Virginia was saying 10 minutes. And it was just a difference of the guidance documents that maybe still has not been resolved, I am not sure.

Mr. MORAN. You don't know what the right answer is, then.

Mr. LASKOWSKI. Well, Jim does.

Mr. MORAN. How long do you boil your water?

Mr. ELDER. I live in Fairfax County Water Authority jurisdiction, so I didn't have to boil water. But we were confident from the beginning when we had the preannouncement meeting in Deputy Mayor Mallett's office of the one-minute requirement. We were later able to persuade the Centers for Disease Control and Prevention to go along with our one-minute advisory.

We did have success with the two counties in Virginia agreeing to the one minute, but at the end of the situation we still had a difference of opinion with officials in the State of Virginia and Richmond.

Mr. MORAN. Well, I won't get into that. Sometimes we have differences of opinion with the officials in Richmond as well.

Just one further question. I would not be surprised, the market forces working as they do, that we may have a whole lot of entrepreneurs coming into the Washington area, putting more money into advertising for new gismos to put under your sink or whatever to purify your water, to exploit the lack of confidence or at least—well, some people are calling it a crisis of confidence.

I think that might be a little dramatic. But there will be people attempting to exploit that from an entrepreneurial standpoint. Is there any reason why people should buy devices that further purify the water beyond what they get out of their tap—out of their sink or pipes?

Mr. ELDER. Generally speaking, no. As long as the Dalecarlia and McMillan Plants stay in compliance and the monitoring results are within EPA standards, there is no need to do that. There are some specific concerns in the D.C. system relating to lead, which the District is, as well as the Corps of Engineers, are working on a corrosion control study to deal with that.

In terms of bacterial contamination, I share a concern about the entrepreneurial spirit that is arising in the area, and I think that

that is not a necessary approach to take. The systems that would deal with bacteria contamination removal tend to be quite expensive, whereas most of the home purification units that are sold, at the tap type units that I do not believe to be effective to deal with coliform bacteria or certainly not giardia or cryptosporidium.

Mr. MORAN. They would not necessarily protect you from the bacteria that is the subject of the discussion today.

Mr. ELDER. Correct.

Mr. MORAN. So it is superfluous.

Thank you very much, Madam Chairwoman.

Ms. NORTON. Thank you, Mr. Moran. Before you go, gentlemen, I would like to ask one question about lead in the water of the District of Columbia. Is it true that if you boil water too long, it reinforces the lead that may exist in the water?

Mr. ELDER. Yes. Through the evaporation process, you tend to concentrate what lead that might preexist in the water coming out of the tap. But depending upon how long you boil it, it is not necessarily that much. It probably depends more what it is you are boiling the water in, whether or not the vessel that you are using to boil the water in may have some lead as part of its alloy.

Ms. NORTON. Does the water of the District of Columbia have a fairly high quantity of lead in it?

Mr. ELDER. It is in the range above the EPA action level of 15 parts per billion based on two rounds of tests. But it is, comparatively speaking, slightly over that figure. There are situations around the country that are orders of magnitude worse than the lead testing results.

Ms. NORTON. And you indicated that there was a plan to reduce the lead in the water of this region now?

Mr. ELDER. Yes, there is a requirement to do the studies associated with optimizing corrosion control through putting pH adjustment chemicals into the distribution system so it reduces the amount of leaching of lead that may come out of the lead service line pipes throughout the District of Columbia and surrounding area distribution systems.

Ms. NORTON. So that you can take action that neutralizes the lead without going through the capital expense of changing the pipes themselves?

Mr. ELDER. Yes. Our regulatory sequence is that you do corrosion control first. If that does not sufficiently mitigate the problem, then under our regulation, we would order the community water system to proceed with replacement of lead service lines.

Ms. NORTON. Thank you very much. I want to thank all of you for the testimony that has been indispensable. I appreciate your being forthcoming. I appreciate your coming today. Thank you very much.

General GENEVA. Thank you, ma'am.

Mr. LASKOWSKI. Thank you.

Mr. ELDER. Thank you.

Ms. NORTON. I would like to call now the representatives of the affected jurisdictions. From Arlington County, Virginia, Chairman James B. Hunter III, of the Arlington County Board; from Fairfax County, Virginia, Chairman Thomas M. Davis III, of the Board of

Supervisors; and from the District of Columbia, Mr. Robert Mallett, City Administrator.

Gentlemen, may I ask you to summarize your testimony. There is going to be another event in this room this afternoon, and your entire testimony will be admitted for the record. You may testify in any order you choose.

TESTIMONY OF ROBERT L. MALLETT, CITY ADMINISTRATOR AND DEPUTY MAYOR FOR OPERATIONS, GOVERNMENT OF THE DISTRICT OF COLUMBIA, ACCOMPANIED BY DR. MOHAMMED N. AKHTER, COMMISSIONER OF PUBLIC HEALTH, EDWARD SCOTT, ADMINISTRATOR, WATER SEWER UTILITY ADMINISTRATION, DEPARTMENT OF PUBLIC WORKS, AND STEPHEN E. RICKMAN, DIRECTOR, OFFICE OF EMERGENCY PREPAREDNESS; THOMAS M. DAVIS III, CHAIRMAN, FAIRFAX COUNTY, VIRGINIA BOARD OF SUPERVISORS; AND JAMES B. HUNTER III, CHAIRMAN, ARLINGTON COUNTY BOARD, ARLINGTON COUNTY, VA

Mr. MALLETT. Good morning, Ms. Norton, Chairperson Norton, my delegate, Ms. Byrne, Mr. Moran. We thank you for the opportunity to discuss safe water supplies for the District of Columbia and the areas of the metropolitan region served by the Washington aqueduct. Mayor Kelly has asked me to convey her appreciation for the leadership you are providing, Ms. Norton, on this very important matter.

I am Robert Mallett, City Administrator and Deputy Mayor of the District of Columbia. I am flanked happily by experts from my own jurisdiction and other jurisdictions to assist us in any technical questions you might have to ask.

Quickly, I would like to cut to the chase with respect to the District's concern, and I think it is shared by our neighboring jurisdictions.

We first support all investigative actions that are now under way. We want to know precisely what caused this calamity, when it began, was there a delay in notifying the affected jurisdictions, and what measures are now in place that will ensure that this does not happen again.

The District also seeks, and I think we do so also with our suburban neighbors, greater clarity on the emergency notification procedures and policies used by the Environmental Protection Agency and the Corps of Engineers for conveying information to alert public officials and the general public. This is an area of concern to us, because the lack of coordination and preplanning can lead to delays in notification with a resultant risk to public health and safety.

Further delay, unevenness and intermittent release of information can undermine the most rehearsed emergency response plan and needlessly panic the public. We need guidelines for notification and emergency, and they should be developed and widely disseminated, as there is a critical need to control the flow of information to avert rumor and public panic during an emergency.

I will be glad to respond to any of your questions.

Ms. NORTON. Thank you very much. Mr. Davis, do you want to go next?

Mr. DAVIS. Thank you, Madam Chairwoman and members of the committee, for the opportunity to appear here today. In Fairfax County we have 125,000 of our residents who purchase their water from the City of Falls Church, and were the ones who were affected in this particular instance.

Our regional contingency plan for potable water emergencies is in place, but was not followed in this instance. Notifications to affected local governments were not in accordance with the Metropolitan Washington Water Supply Agreement, which in this case is the Corps of Engineers, to notify local governments, among others.

Our county health department and the water authority were notified of the EPA boil-water notice by phone at 3:00 p.m. on Wednesday, December 8th, by the Virginia Department of Health, Culpeper office. The county was not allowed to review or comment on the draft news release of the EPA boil-water notice and the county was not provided a copy of the notice until two hours later, after it had been released to the media.

Only then did we discover that Fairfax County residents had not been included in the language of the notice. Trying to correct this problem once the initial notice went out was the equivalent of trying to get the genie back in the bottle. This caused great confusion, fear and concern among county residents and generated thousands of calls.

Had we been provided with the opportunity to review the notice prior to its being issued, we would have been able to specify the areas of the county which were affected and could have eliminated a problem which never needed to exist.

I have a much fuller statement that I think you have before you and I will be happy to answer questions. And I have Dr. Carol Sharett from our Department of Health here to assist me.

Ms. NORTON. Thank you, Mr. Davis. Mr. Hunter.

Mr. HUNTER. Thank you. Congresswoman Norton, it is a pleasure to be here with you today and the subcommittee. December 8th is a day that we won't forget in Arlington County. Our residents and businesses will remember that day for a long time to come. It was a sobering new page in our regional history.

The concerns that came forward that day, of course, were valid. The generalized health risks for all of us, especially those with compromised immunity, were serious indeed. We have learned some important lessons from the incident, both in terms of our ability to coalesce resources in the region, and in terms of the complexity of intergovernmental decision making.

Ultimately and fortunately, there was no cause for alarm. The governments affected in the emergency, plus all governments in the region can learn from the incident and work together on new models of shared response to emergencies which may occur in the future. We feel the Council of Governments did an excellent job in responding and credit should be given to the Corps of Engineers which has taken full responsibility for the problem and for taking action to avoid repetition.

Most importantly to us in Arlington County in the aftermath of the incident is ensuring that we don't have repetitions. We believe it is imperative that the Corps of Engineers' authority to borrow directly to finance its needed capital improvements at Dalecarlia is

restored by Congress as soon as possible. We understand that the Corps has almost \$100 million in capital improvements that are either currently required or may be needed in the next five years to meet possible changes in national environmental standards set by EPA.

The Corps, which provides services much like any other utility company, doesn't have currently, the ability to finance like other utilities. Its inability to borrow to finance needed capital improvements is analogous to building a toll road and expecting drivers to pay all of the project costs in the first year rather than amortizing the cost over the useful life of the road.

As you are probably aware, the Corps' inability to finance capital needs dates back to 1985 when the District of Columbia appropriately gained the authority to issue bonds directly to the public capital markets. At that time, the Corps lost its historic ability to borrow from the Treasury for the Corps-owned and operated Dalecarlia plant.

Congressman Moran, as mentioned by him earlier, is working on legislation, and I hope everyone will be supportive of that. I would be remiss if I did not state that the Corps has a capital financing plan. It does. But it envisions charging local government customers for the needed \$100 million in capital costs over the next five years, rather than amortizing over the useful life of the plant. Local governments do not have unlimited ability to either pay up front or to borrow to support the Corps' required capital improvements.

We hope the recent emergency has made everyone aware of these concerns. The ultimate solution, we believe, is to restore capital financing authority to the Corps.

Chairwoman Norton, this concludes my testimony. Thank you for the opportunity to appear here today.

Ms. NORTON. Thank you, Mr. Hunter. The point you make about the up-front pay is a most important point if we are talking about serious improvements, and it ought to be possible to get that authority back, and I will work hard on that with my colleagues from the region.

The District was, Mr. Mallett, the first to learn of this, it would appear by happenstance, because you happened to have a meeting with Mr. Laskowski. In any case, you heard about the problems two hours before the boil-water notice was issued. Would you describe to us the process of notification and indicate whether it was smooth enough to allow you to do what was necessary, and then I would like to hear from the other officials concerning the way in which they were notified and whether they thought that the process was adequate to the need.

Mr. MALLETT. I will be glad to, Mrs. Norton. While I thought we may have been the first to have been notified, until I came to this hearing this morning, I did learn that another jurisdiction was contacted initially a full hour before my office had been contacted. I think that is what I heard in the testimony today. So I am not certain that we were the first jurisdiction. I did, as you know, have a previously scheduled meeting with the EPA administrator.

With respect to notification, I was notified at 2:13 on December the 8th. I remember it very well, because it was logged in on my messages, and I had just returned from a previous meeting. Mr.

Laskowski had a preexisting meeting with me and immediately notified me of what the problem was when he arrived at my office at 2:30. I had made contact with his office shortly before he arrived.

Clearly, I think the EPA and the Corps would acknowledge that there were some kinks in the way that our communication network worked. However, once we received a full briefing on what was at issue, and the potential danger, I think it began to work a lot more smoothly.

Ms. NORTON. I remember looking at the television and being alerted that any moment now there was going to be an important press conference, and I remember wondering what this press conference was going to be about, and I remember that there was a fairly long interval of time. People and cameras were gathered at One Judiciary Square, but then nothing happened for some time.

Does that indicate that there were problems in the way in which the briefing was going on or in the way in which the notification of the public was to take place? Indeed, what was indicated by that span of time?

Mr. MALLETT. I think, quite frankly, when the EPA came to my office and subsequently joined by the Army Corps of Engineers, I think they were still in the fact-gathering mode. In fact, the boil-water notice was faxed to my office for Mr. Laskowski's review.

At that time, because I had not heard from some of my colleagues in the region, I immediately contacted my counterparts in the region to advise them that I had received the notice. The first notice received actually carried some erroneous information. It had included Alexandria, Mr. Moran, in the notice, which caused my colleague in that jurisdiction some degree of angst.

As well, it did not include all of the affected areas. In fact, it did not include any of the areas in Maryland that were affected. I don't believe that correction was made until the following day. It did not include all of the areas, I believe, in Fairfax County that had been affected. This obviously created some degree of anxiety on all of our parts.

I was also awaiting the arrival of my counterpart in Arlington County to join me at my office so that we would have from our perspective, from the local government constituent service perspective some orderly process in notifying the public.

Ms. NORTON. Has the Corps or the EPA asked to meet with you since or asked you to participate in any studies or investigations of this incident?

Mr. MALLETT. I have a meeting this afternoon with Mr. Laskowski about the issue that we were going to discuss on December the 8th. I take it he will not be bringing me any emergency news at that meeting. I have not been invited to participate in any such discussions about emergency sponsor notification, by either the Corps or the Environmental Protection Agency.

Ms. NORTON. Could I ask the other two chairmen if they have any different responses to the questions I have put to Mr. Mallett?

Mr. DAVIS. No different. I have detailed fully the time of notification in Fairfax. We are hoping for a regional summit and hopefully the Corps of Engineers and EPA would be participants in that. I would note on page 4 of our testimony that we have talked about the real problem here, which was that this Metropolitan Washing-

ton Water Supply Agreement had not foreseen two significant circumstances that impacted this event. It had never been envisioned that an outside agency, EPA, would come in and take control from the Corps of Engineers and the District of Columbia.

Direction of control was exercised by an agency. The EPA had not been a signatory to the plan and in all probability had not even read the plan.

Secondly, the plan's emphasis on the water quantity has not really addressed the quality problems and, hopefully, with this regional summit, those problems will be addressed in an appropriate manner.

Mr. HUNTER. In the case of Arlington as well, what happened was consistent with what was reported earlier today. The Corps of Engineers called us at about 2:15 in the afternoon and we heard from the Commonwealth of Virginia about five minutes later. We alerted and organized our Emergency Response Team, which went fast to work, I mean because we are smaller, we act faster. Then the events went on from there and we made the official announcement as soon as the EPA press release occurred; but we were all ready to do it at that time.

We were alerted at the first phone call, at 2:15, that it would probably be about a boil-water notice.

Ms. NORTON. Do either of you gentlemen have any idea or has anyone made or attempted to make any estimate of the financial impact of this emergency on the respective jurisdictions?

Mr. MALLETT. Well, the District of Columbia has made an inquiry. It is going to be a pretty massive undertaking, but we are undertaking that review now. Obviously, restaurants were affected, hospitals were affected, as well as a number of our citizens, the supermarkets as well. So we are now undertaking a review to see if we can determine what the economic impact has been as a result of this emergency.

Mr. DAVIS. The same at Fairfax. We are trying to look at what has happened, the small businesses that rely on the water supply, as well as what it costs the county directly with overtime to do that, and we will get back with you more fully when we have assembled that.

Mr. HUNTER. Of course, the same applies in Arlington. It is very difficult to measure when you are talking about the very small restaurants which are most clearly affected, and the effect on the more vulnerable institutions, the hospitals, the nursing homes, and children-serving institutions. So those things are more qualitative than quantitative. I think it would be very difficult to measure, quite frankly.

Ms. NORTON. Finally, is there any evidence from medical authorities of consequences to residents in the jurisdictions from this episode?

Mr. DAVIS. We have none in Fairfax.

Mr. MALLETT. Our Commission of Public Health also notes that we have none either.

Mr. HUNTER. None in Arlington.

Ms. NORTON. I have further questions, but I would like to turn first to Ms. Byrne.

Ms. BYRNE. Thank you, Madam Chairwoman. I just have a couple of questions and I welcome my good friend, Jim Hunter, and our Chairman of the County Board, Mr. Davis.

Mr. Davis, in your testimony did you say that the State Water Control Board were the ones who contacted you?

Mr. DAVIS. Yes.

Ms. BYRNE. When you go to your regional meeting, do you think that maybe we should talk to the general assembly about that? It seems to me that we are a lot closer to the District of Columbia than we are to Richmond in terms of trying to get information back and forth.

Mr. DAVIS. Correct. If they had gone under the agreement that had been entered into, we would have been notified, but in this case I think they felt they acted appropriately by contacting State officials. I don't think there was a great delay in that. The difficulty we had was the initial press release that came out, really excluded Fairfax County, and it went downhill from there.

Ms. BYRNE. I am sure that your office was inundated with phone calls, as our office was, in people trying to gather information, whether they were in or out of the affected area in Fairfax County. Because in no stretch of the imagination was it clear what areas were affected?

Mr. DAVIS. Correct. We were getting about 2,500 calls an hour. We set up an emergency center. Plus the water authority was inundated. I think they were calling everybody at that point that they could call to try to get the correct information.

Ms. BYRNE. Mr. Hunter, evidently from Mr. Laskowski's statement that he thought that it was his job in the whole Commonwealth of Virginia to notify the State officials which would in turn notify the localities. But had you a different experience in that you were notified directly by the District; is that correct?

Mr. HUNTER. By the Corps of Engineers. But there was only a lapse time of about five minutes between the two notifications—the second by State officials.

Ms. BYRNE. So we had EPA going through one notification procedure. We had the Corps of Engineers going through another notification procedure?

Mr. HUNTER. That is what happened, in effect, in Arlington County, yes, ma'am.

Ms. BYRNE. Okay. Thank you, Madam Chairman.

Ms. NORTON. Thank you very much, Ms. Byrne.

Mr. Moran.

Mr. MORAN. Whose idea was it to contact the Council of Governments to set up that information hot line?

Mr. MALLET. It was the—the idea came about as a result of the presence of Tony Gardner of Arlington County in my office on December the 8th. We both thought that the Council of Governments should serve as the regional response facility.

Mr. MORAN. I think that was an excellent decision. I was just curious, because I suspected that it was not the set down practice, that this was one of those ad hoc decisions, and it was a good one.

Mr. MALLET. We have made a lot of ad hoc decisions that day, Mr. Moran.

Mr. MORAN. I would assume that in your summit, you are going to put some of those into a set of guidelines if this happens again, and that would be one of them: Who gets information, and do you have a central number that you can all use. So I would think that Carol could fulfill that role very well. That was an excellent reaction.

Do you have any unanimity of opinion as to the proper way for people to boil water or react where they can get good water and so on? It would seem that one of the things that we might do in preparation for another occurrence, if it happened, is to have some uniform guidelines.

Ten minutes is too long, and I am sure people that needed water, having to boil for ten minutes, that was really an excessive delay and too much of a burden to have imposed upon people. So if it wasn't necessary, we shouldn't have told them they had to do it. But are we going to come up with a regional approach, not only to what you do so that you can use the water, but where you can get adequate supplies of water at reasonable prices so that there isn't price gouging in the future?

Mr. MALLETT. That is an issue that the chief administrative offices of the jurisdiction of COG can determine to put on our agenda at the next meeting to discuss this entire process. We were also advised by our respective public health commissioners in Fairfax County, Arlington County and the District of Columbia that a minute was adequate to boil the water.

I think the Committee of Public Health Commissioners at COG should also address that issue.

Mr. MORAN. Now, I am going to ask Tom and Jim what you are going to suggest as to what might be done better next time, in addition to what you have already mentioned about the accuracy of information. But as I understand it, we wouldn't have had any crisis, even if all of this had happened at the Dalecarlia Reservoir, if McMillan Reservoir was not under some repair, that you could have just switched over to the McMillan Reservoir and you would have been all set. Is that correct?

Well, I guess we need the General to respond to that, because it was a combination of factors, I understand, that caused the crisis that—and one of them being the fact that the other reservoir was under repair.

General GENEGA. McMillan Reservoir was under repair, again, as part of a normal Capital Improvements Program. We were replacing screening filters and so forth and it had been shut down. While physically, that transfer could have been made at the time of those turbidity readings, I would very forthrightly say to you, the impact of those readings was not understood, and so that change would not have been made at that point in time, even if the other plant had been operational. That may change in the future, if EPA were to provide different criteria with regard to turbidity readings, but I must say very forthrightly, even had the plant been in service, what we did would not have changed.

Mr. MORAN. I see. Okay. Thank you, General. I would assume the next time, since the work is going to be more alert, though, and learning from this experience, that that might well be an option, to switch over.

General GENEGA. Yes, sir, although I, frankly, would have to defer to EPA as far as the science with regard to the testing and so forth.

Mr. MORAN. Fine. Thank you.

General GENEGA. Thank you, sir.

Mr. MORAN. Now, Tom and Jim, what would you suggest be done, both in terms of reacting to the situation after it occurs as well as getting advance notice?

Mr. DAVIS. Congressman, we have asked for a regional summit and under the auspices of the Council of Governments that will come to fruition sometime in late January. I have a number of recommendations on pages 4 and 5 of our testimony that come from our county staff, but it is clear that the health departments throughout the metropolitan area should develop concise recommendations on issues and measures such as the boil-water notice. That would help. And I think the whole process highlights the necessity for continued regional planning.

We are going to have more regional problems with this issue. We have seen a couple just in the last year and I think we need to start getting our protocols, our notification procedures down and correct. I think a lot of things went wrong on this and we detailed them. A lot of things went right, too. As we move forward we can build on that.

Mr. HUNTER. I think you are on to something where your question about the one-minute versus 10 minutes. The scientific evidence our health director tells me is extremely thin on this matter, and I think the first thing is for the scientists to agree among themselves whether it should be one minute, two minutes or seven minutes or three-and-a-half minutes. So to answer that question first, those of us who aren't scientists will know just how long to boil the water. There was a lot of uncertainty.

Frankly, I was a little nervous. I thought maybe one minute wasn't quite enough. After hearing the testimony today, I am sure I should have boiled it much more than one minute.

As to the other, you are asking for suggestions on how to do things better the next time, notify the Virginia Department of Health more quickly and get that system working. The ad hoc decision that was arrived at involving COG, I think, was an excellent one and I think we ought to do it that way next time. That was a good snap decision and I think we ought to do that again.

Finally and probably most important, if anything comes out of this, if there is any silver lining to this cloud, it is the funding for the Corps. Get the funding for the Corps so that we can have an updated plant and not 120-year-old pipes and 50-year-old equipment.

Mr. MORAN. Excellent suggestions, and I would hope that if the summit feels that that is necessary, then we would get a recommendation for funding, because I think that would be persuasive.

Mr. MALLETT. We would certainly agree that we have to look at funding. However, it seems to me that hand in hand with those funding and financing issues comes also some accountability to the jurisdictions in some way or another.

One of the problems we have in the District of Columbia, we fund the operating expenses of the Dalecarlia Plant to the tune of \$16.1 million, and I think another \$1.7 million in capital expenditures. Yet, we have no review, substantial review of what that means. So we don't know the quality of the engineering.

We don't know the scope of the work, and whether or not it will represent an allocation to solve the problems that might exist at the plant. So any funding decisions that are made, it seems to me we also have to join in the discussion about those customers of the plant, Arlington County, parts of Fairfax County and the District of Columbia, having something to say about the operational needs.

Mr. MORAN. There is going to be an audit conducted. That would be a good opportunity to review the audit and then make recommendations.

Thank you very much, Madam Chairwoman Norton.

Ms. NORTON. Ms. Byrne.

Ms. BYRNE. Mr. Mallett, you just struck on something that has been forming in my mind as we have been going through all of this. Have you heard or are you aware of any managerial problems at the aqueduct at Dalecarlia?

Mr. MALLET. Strictly anecdotal information, none at all documented.

Ms. BYRNE. But there is anecdotal information that there are some—

Mr. MALLET. I have been made aware of the petition to which you referred this morning and some other things by our water experts in the District of Columbia, but I take that information like I take a lot—I hear a lot of problems and I sometimes allow others to investigate them.

Ms. BYRNE. Right. And with your tremendous investment in this plant, I am sure that you would like to find out more about it also.

Mr. MALLET. There is no doubt about it. We have been bantering about an idea inside the District government perhaps about a water board composed of the three jurisdictions involved to have some ongoing discussions with the Corps about, but it is an issue that we have decided that we are going to continue to study and speak with Mrs. Norton about at some length before we advance the idea much further.

Ms. BYRNE. Thank you, Mr. Mallett.

Ms. NORTON. Thank you, Ms. Byrne. I would like to pose a few more questions to Mr. Mallett, which I think relate also to the other jurisdictions. Given the age of this system, there are obvious concerns.

Of course, the plant itself, we are told, is fully adequate. The problem is that the distribution system is of various ages. In the District, prior to this recent alert, the District itself issued an announcement that 25 percent of the taps tested contained lead levels above the EPA's "action level," apparently because of lead leaching from the pipes. If this is true, could you explain the circumstances leading to this announcement and what corrective action has been taken? I would like to know if the other jurisdictions have found lead in the pipes in their distribution systems as well.

Mr. MALLETT. Mrs. Norton, I have asked Ed Scott, he is the Administrator of the District's Water and Sewer Utility Administration. I think he is more appropriate to answer that question.

Mr. SCOTT. Good afternoon. As a result of the new lead rule that was published not too long ago by the EPA, we are required to test for lead in our small sampling for lead in our households. We have done that for two years now, and if we exceed the lead rule, then we are required to issue a publication and advise the public.

We have approximately, I guess, 20,000 of our homes in the District that have lead services or have lead soldering inside of those homes.

Ms. NORTON. Are they all over the District?

Mr. SCOTT. They are concentrated primarily in the older areas of the District. Some in the Brooklyn area and some over in the Georgetown area, the Palisades area and what have you. We have identified some of those homes through our records and through some sampling of their lines.

Ms. NORTON. Have those residents been notified?

Mr. SCOTT. Those residents are pretty much—yes, they have been notified as to who we think—some of them we have not really identified as to whether they are or not, because the records do not indicate. There have been some changes of those lead lines.

In the District of Columbia, the government is responsible for the water service line from the main to the property line and the resident is responsible for it from the property line on into the home, and the interior piping in the home. We are doing our sampling and we have on two occasions exceeded the lead rule, 15 parts per billion, 10 percent of those samples exceeded—greater than 10 percent of those homes showing a greater than 15 parts per billion of lead. So we have notified those homes. It is routine. It is going on all over the country.

The Corps is working on a Corrosion Control Program using chemicals, to try to introduce chemicals in the water to prevent the leaching of the lead into the water. There is a period of time that that operation would be ongoing, and if we are able to control it, then no further action will be taken. However, if we are unable to do so, then the next course would be to change—to have a substantial program to remove and replace those lead services.

Even if you replace the lead services, however, going into the homes, you still have a problem within the home, because in many cases you have lead lines in the home or lead piping in the home, or lead soldering in those homes. So we are attempting to do that and control it that way.

Ms. NORTON. Yes, Mr. Davis.

Mr. DAVIS. Madam Chairman, we do have a lead monitoring and testing system in Fairfax that we use to look at individual homes where you may have lead soldering and that kind of thing. The construction is much newer in Fairfax. It is not quite the extent as in other jurisdictions, but we have sporadic problems with it. Not system-wide, but in individual homes.

Mr. HUNTER. Madam Chairwoman, in Arlington County, a similar situation. We have a newer plant, if you will. We have tested for lead and has tested very low, well below the EPA-mandated threshold.

Ms. NORTON. Do any of my colleagues have further questions? I want to thank all three of you gentlemen for very helpful testimony. Mr. Mallett, Mr. Davis, Mr. Hunter, thank you again for coming forward.

Our final two witnesses for our last panel, please. Ruth R. Crone, Executive Director, Metropolitan Washington Council of Governments; Erik Olson, Senior Attorney, Natural Resources Defense Council.

TESTIMONY OF RUTH R. CRONE, EXECUTIVE DIRECTOR, METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS; AND ERIK D. OLSON, SENIOR ATTORNEY, NATURAL RESOURCES DEFENSE COUNCIL

Ms. CRONE. Thank you, Chairwoman Norton and members of the subcommittee. My name is Ruth R. Crone. I am Executive Director of the Metropolitan Washington Council of Governments. I am very pleased to have the opportunity to present comments to the Subcommittee on Water Resources and the Environment regarding the December 8, 1993, drinking water supply incident at the Dalecarlia Water Treatment Plant and the ensuing regional response.

I am particularly grateful that Congresswomen Norton and Byrne and Congressman Moran, all Members of the Council of Governments, are present at today's hearing and lending such important attention to this matter.

The incident at the Dalecarlia Water Treatment Plant was of regional concern and certainly highlighted the importance of maintaining a safe drinking water supply and supporting a strong regional emergency response capability.

Early in the course of the water emergency on December the 8th, at approximately 6:00 p.m., COG was asked by Robert Mallett, City Administrator for the District of Columbia and Tony Gardner, Arlington County Manager, to establish a regional command center.

The purpose of the COG command center was twofold. First, to provide a central information contact for the public and for others seeking accurate and current information on the water emergency and necessary precautions such as boiling water, or using bottled water for drinking and cooking purposes.

The second purpose was to provide key Federal and local officials with a location where information could be exchanged quickly to all of the relevant officials. COG quickly obtained a telephone number, which was 962-3217, permanently in my head, for public inquiries. We installed 12 telephones and obtained volunteers from COG and local government and Federal agencies to help staff these phones.

The COG Water Information Center hot line was open 24 hours a day, from the first evening of the emergency on Wednesday to its conclusion on Saturday afternoon, and we continued the operation of the water line two days after the boil ban was dismissed to follow up on additional inquiries.

On Saturday afternoon, EPA Administrator Carol Browner personally visited the COG information center to thank volunteers and handled a few calls herself from area residents. I believe the results of the command center operation were impressive.

Approximately 50 volunteers from COG and the Federal and local agencies responded to more than 15,600 calls from the public.

In addition, Federal and local health officers were on site at COG throughout the water emergency. Our local government officials from the affected counties were participating all four days. Officials worked around the clock to address the treatment filtration problems and to restore service to the affected communities.

Additionally, they sought to provide the latest information to the media and to the public. By having all of the relevant actors together in one location, internal decisions were made far more quickly than if we did not take this action. Since 1970, COG has been actively involved in developing a number of plans and agreements for all types of contingencies.

Several of you have been very much involved in those. We were instrumental, for example, in developing police and fire mutual aid agreements and a comprehensive Washington Metropolitan Area Mutual Aid Operational Plan which followed the twin disasters of Air Florida and the Metro derailment of January 12, 1982. These agreements have the support and involvement of all of the jurisdictions in the region.

As mentioned earlier, in 1979 the regional water supply emergency for the Potomac River was adopted by 15 local governments in the Washington region, as well as water utilities and COG. It was the result of a two-year effort to organize and consolidate the water emergency procedures of individual utilities.

The agreement coordinates area-wide water conservation, as well as curtailed water use during periods when water supply demands are exceeded. It also delineates steps necessary for an immediate and coordinated response in the event of a water supply shortage or outage.

Much has changed in terms of the Washington region's water supply since that agreement was adopted more than 14 years ago. Although the Water Supply Emergency Agreement was originally developed to provide primarily addressed drought conditions, the framework and response mechanisms outlined in the plan and other COG emergency response plans were useful in dealing with the December 8th emergency.

Nonetheless, regional water supply agreements have been found to be outdated, and they no longer are relevant to current and future regional and local needs.

Unfortunately, our efforts to proceed in this have been somewhat hampered due to limited funding, but I think it is very apparent from the incident and today's hearing, we must move forward collaboratively on this issue.

The recent regional incident at the Dalecarlia Plant, as well as the oil spill incident last spring at Sugarland Run highlights the region's awareness of the need to intensify our efforts. Such efforts will require a great deal of technical and policy coordination as well as numerous meetings with our regional and local governments, representatives, regional water utilities and other key regional, State and Federal personnel.

COG will be briefing, as mentioned earlier, area local administrators and managers on water emergency in early January. We also anticipate a similar briefing to the Council of Government's Board of Directors and relevant policy and technical committees.

As a result of these meetings, we expect to sponsor a regional summit in late January on the water emergency.

Further, we would urge the Federal support and assistance in developing a much stronger and more effective Regional Water Supply Emergency Agreement and Response Plan in conjunction with these activities.

Madam Chairwoman and members of the subcommittee, I would like to take this opportunity once again to thank you for allowing the Council of Governments to speak on this important issue. We are committed to continued improvement in all aspects of the region's water supply and response capability.

We look forward to working with the members of the subcommittee, the Federal and local agencies to ensure that our shared goals are met. Thank you very much.

Ms. NORTON. Thank you very much, Ms. Crone.

Mr. Olson.

Mr. OLSON. Thank you, and good afternoon. I will wrap up the hearing and appreciate the committee bearing with me. Across the Washington D.C. metropolitan area, the Capital of the most advanced industrialized Nation in the world, nearly 1 million people spent several days boiling or buying bottled water earlier this month.

Our confidence in the safety of our tap water, which most of us have taken for granted, has been shaken, and well it should be. Although some officials may hope that the public's memory is short and that we will forget about these events quickly, allowing a return to business as usual, we cannot let that happen.

At least for a while, EPA, we believe, should oversee and take over testing at the water treatment plant in Washington. In addition, EPA should oversee a detailed audit of the water system's equipment and operations and upstream pollution threats.

Ultimately, it is clear that the water treatment system in Washington will have to be upgraded and will have to do better work on protecting the Potomac from pollution. Efforts to portray the recent events as a rare failure of a few low-level employees at the Corps of Engineers is scapegoating at best and extremely misleading.

Last week's events offer only a small glimpse of a major problem with drinking water, not only in Washington, but across the Nation. We have a deeper, more fundamental problem with Washington's and the country's increasingly threatened, outdated and crumbling system for the provision of safe drinking water.

NRDC recently released a report documenting that in 1991 and 1992 over 20 million people across the United States drank water more contaminated than EPA's standards allowed, and over 100 million people drank water from systems that violated the testing, reporting or treatment technique requirements.

The D.C. water system is an example. In September and during much of the summer and fall, total coliform bacteria had been found in tap water at many locations across the city. This led EPA in September to issue the emergency order finding an imminent health threat. We don't really know the source of all of that bacteria.

Total coliform are also frequently found where they should not be found, immediately downstream of the Corps' filtration plant, again for reasons that remain a mystery. Several weeks ago due to bacterial contamination found in water at the Corps' treatment plant itself, notices were posted at the plant telling workers not to consume the water. Again, monitoring data for D.C. indicated that during many months during the last few years, the water supply has contained turbidity, the cloudiness that caused the recent uproar, at levels well above the EPA standard of 0.5 units.

So this is not the only time this has happened; were there previous violations? We don't know.

Just before the boil-water notice was issued earlier this month, D.C. issued a little-noticed announcement that 25 percent of the taps tested in the city were over the EPA action level—this was recently referred to—for lead leaching from pipes.

In addition, something that hasn't been mentioned today is that monitoring data in Washington indicates that it often contains high levels of chemicals called trihalomethanes. These organic chemicals are created when water is chlorinated and have been found in at least nine human epidemiological studies to have links to cancer, and recent studies suggest they may have links to birth defects.

It is clear that we need to do a comprehensive evaluation of the D.C. water system and look at granular-activated carbon and other state-of-the-art modern treatment, such as Fairfax County recently has done. We also need automatic turbidity monitors, as many neighboring jurisdictions have. Stronger efforts need to be made to modernize the treatment plants in D.C., and the Safe Drinking Water Act must be beefed up to tighten health standards and improve EPA enforcement and better fund water supply improvements.

The Clinton administration has made some proposals which, while needing some improvement, take positive steps in this direction. The efforts to enfeeble drinking water protection, such as those in the Slattery-Bliley bill, would weaken health standards and reduce notification requirements, have to be rejected.

In addition, legislation which has been proposed by Representative Oberstar, and which I understand Congresswoman Norton will introduce, I guess, early next year, would take action to protect the watersheds so that pollution doesn't reach the water before it gets to our treatment plants.

Many water systems like D.C. and Milwaukee are walking on a razor's edge. The traditional multiple barriers to contamination are often lacking or threatened by underinvestment or nonexistent water pollution controls. We should not have to face more water scares, more disease outbreaks or chemical contamination incidents for the public to demand that Congress and local officials take action. Let's hope that Washington does not become famous for repeated notices greeting visitors with the kind of notice that is often associated with developing countries: Welcome to the Nation's capital. Please do not drink the water until further notice.

We recommend seven actions be taken. I won't go into any detail, but I will summarize each with one sentence. First, a full independent engineering and comprehensive performance evaluation of both McMillan and Dalecarlia has to be completed. We think the

Corps should pay for it, but we think it is important that it is an independent evaluation.

Second, we need a complete audit by EPA of all the past records at the plants. Preliminary indications indicate that there have been past problems with this plant, and interviews with current and past personnel to determine whether there have been past violations are necessary.

Third, we need initiation of a comprehensive microbiological monitoring program to be overseen by EPA. And we mentioned, the points that often are not being tested that may serve as problems.

And fourth, we need a detailed evaluation, again by an independent contractor, to look at the cross-connection problems, regrowth, and other distribution system problems in the District which needs desperately a routine flushing program to be carried on, as most cities do. It has been likened to brushing your teeth every morning; you need to do it, and it often has not been done in D.C.

Fifth, a comprehensive evaluation of the future needs for the two water treatment plants to assure long-term water quality is absolutely necessary, especially with tougher requirements coming up for cryptosporidium, for other microbiological contaminants, and for disinfection by-products.

Sixth, EPA should complete a full review and evaluation of all the upstream discharges and potential threats to the source water of the plants. As we heard, there was a previous spill of oil into the watershed. Luckily, it didn't hit our intakes, but that could have changed simply with a change of flow patterns. We are very lucky it didn't happen the last time.

And finally, in cooperation with the D.C. Government and jurisdictions served by the Corps' treatment plants, and with public input, we believe it is very important for EPA and the Centers for Disease Control and Prevention to design and implement an active waterborne disease monitoring program. It should include surveillance of AIDS and immunocompromised populations and an epidemiological study of waterborne disease in these areas to follow up on previous studies that have suggested as much as 30 percent of intestinal illnesses in a population served by a well-run filtration plant still may be attributable to drinking water. This program could be used as a model across the country and could assist the policymakers in making final decisions on what to do about the D.C. water supply.

Without these detailed evaluations, we will be heading into the future without a road map, destined to repeat past problems.

Thank you.

Ms. NORTON. Thank you, very much, Mr. Olson.

Ms. Crone, you have heard Washington Council of Governments applauded here today for the role you played as a kind of intermediary in this crisis, and I want to add my applause to that. The water supply emergency agreement, however, apparently did not contemplate this particular kind of emergency. Could you explain what it does contemplate, and what you think should occur in a water emergency?

Ms. CRONE. Chairwomen Norton, in 1979 when this plan was put together, EPA was not a signatory to the plan. This is an important fact, I believe. And another was—

Ms. NORTON. Why was that?

Ms. CRONE. The purpose of the plan, at that time, was primarily to respond to the drought conditions we were experiencing in the Potomac River. It was a supply issue. There was concern that the people in the Washington-metropolitan area would be in need of water if the drought were to be exacerbated as well as the aquatic life in the Potomac River would be in jeopardy. These were the two aspects of that plan at that time.

The plan was developed under the Clean Water Act back in 1979 with Federal funding, that we had at that point to address the issues of water supply. I believe a lot of the framework in that plan, as well as a lot of the framework that we have in other emergency response plans, is applicable to a situation such as the one we had. And in some fashion that is really what we relied upon in our very quick effort to respond. Certainly it helped in terms of setting up the water information line, bringing in the health officers, who do fortunately meet monthly at the Council of Governments, and were able to work together very well; a number of chief administrative officers and elected officials in the area. Through those kinds of mechanisms this response was possible in this instance.

But I believe very strongly that we certainly need to do some major dusting off of that plan. Really revise it in a way that would respond to issues of water quality, and make it very clear in terms of notification procedures; who would be notifying what governments, which persons, and that type of thing.

What was needed during this occasion was a central place where the media could address their questions and one central telephone number made available to everybody in the Washington area. We really needed that one telephone number and a response system immediately. And we scrambled very hard to do that in a coordinated fashion.

Ms. NORTON. Ms. Crone, I think that your experience shows that even if one doesn't have a plan directed to a particular crisis, having some kind of plan puts one very much ahead of the game. And the summit idea where, as I have understood the EPA would also be invited along with the Corps, is one that I certainly endorse and I believe my colleagues would as well.

Turning now to Mr. Olson your testimony leads me to believe that your organization actively monitors the delivery of drinking water to consumers. Does it do that, and if so, how?

Mr. OLSON. We do, for some time we have been monitoring EPA's database. EPA has a computerized system that keeps track of compliance of all public water systems in the country. That is the data which indicates that over 28 million people got water in 1991 and 1992 that was more contaminated than EPA standards allow.

Ms. NORTON. Do you believe that the problems with the water in the District and in Milwaukee occurred because of a local failure to comply with the regulations or because the regulations are not stringent enough?

Mr. OLSON. I think it was a combination of factors. In Milwaukee, there was relatively poor upstream pollution control. It is clear that that may be a factor here for the Washington supply as well; so that you don't have good controls of pollution coming into the watershed.

Secondly, in Milwaukee, and in this case, it appears that there were operational problems. The plant was not being operated up to EPA standards.

And, obviously, there may have been some long-standing problems with just the design of both plants. And I understand there may have been equipment problems, certainly at Milwaukee, and I think we may find that there were some equipment problems here in Washington.

Ms. NORTON. Was human error any part of what happened in Milwaukee?

Mr. OLSON. There hasn't been a comprehensive evaluation done that is public yet. Certainly, the lore within the industry is that, yes, human error was a contributing factor there as well. But nothing has been published, no detailed investigation has been published yet.

Ms. NORTON. What do you consider to be an acceptable period of time between when the problem with the water is detected and the public is notified?

Mr. OLSON. It depends on the contaminant. If you have got a microbiological contaminant like we did here, if there was indeed cryptosporidium in the water—thank God apparently there was not—we ought to get out the notice as soon as we know about the problem, because the people that you are most worried about are the elderly, infants, people with AIDS, recent transplant patients. There are examples in Milwaukee of people who simply took an aspirin and swallowed the aspirin with just enough water to take the aspirin and got sick. So it doesn't take a whole lot of this water to get sick. So you want to get this notice out as soon as you possibly can, before the contaminated water actually gets into the distribution system.

Ms. NORTON. Well, it was in the distribution system.

Mr. OLSON. That is right.

Ms. NORTON. I am supposing this set of facts. It is in the distribution system; we heard testimony that there is not much you can do once you let that occur. We have a situation where, obviously, the Corps and the EPA don't want to unnecessarily alarm people. On the other hand, they know what happened in Milwaukee. Given that set of facts—the possibility of cryptosporidium being in the system—what is the time frame you think should have been operative?

Mr. OLSON. I think they should notify the public as soon as their results come in and they are confirmed that they are above the EPA acute violation levels. The EPA regulations contemplate notice as soon as possible, with a maximum time frame. But waiting for two or three days, certainly is not justified. There ought to be a much faster system in place, some kind of written policy, to make sure that you know who is going to be notified immediately and when they are going to be notified, and when the media are going to be notified. And part of the problem here was that even in September, when we had a previous boil-water order issued for Northeast, apparently, the coordination didn't occur. And apparently there weren't written procedures that clarified precisely who should be notified when. That really needs to happen and we think immediately.

Ms. NORTON. Thank you very much.

Ms. Byrne.

Ms. BYRNE. Just a brief comment to Ms. Crone and Mr. Olson. Again, I think COG deported itself admirably and was probably the bright spot in this whole scenario. And, Mr. Olson, you have touched upon something that concerns me greatly. There are two places we can clean up water. One by nature and one by chemical means in a plant. And this next year we will be doing the rewrite, I hope, of the Clean Water Act and the discussions about wetlands and how they act as filters, I think will come back to this very hearing and the discussions that we have been having today and that we do have a natural way that cleans the water supply through the watershed. And that deserves to be protected.

Mr. OLSON. I couldn't agree with you more. Unfortunately, the two laws, the Safe Drinking Water Act and the Clean Water Act, seem to have gone off on separate paths. We need to make sure we are not dumping into the surface waters the very stuff that we are going to have to remove from the surface water downstream. It simply doesn't make sense.

Ms. NORTON. Mr. Moran.

Mr. MORAN. Mr. Olson—and Ruth, you may want to respond to this as well—if you rated the water systems in metropolitan areas throughout the country on a scale of 1 to 10, 1 being the worst that exists, 10 being the best, where would Washington rank?

Mr. OLSON. I would certainly put it in the bottom half right now, from what we know. It is difficult to say, though, because for a lot of cities we don't have the same kind of ongoing investigation that is going on here in Washington. We just have the spotlight of public scrutiny going on right now. There are a lot of other cities that have serious problems, however.

Mr. MORAN. I know that since you are an advocate within the scope of things and your job is really not to say that everything is fine, but conversely, you are to find fault with things, I think your credibility is dependent upon, to a certain extent, the relative state of condition of other water supplies in other metropolitan areas. What would be a good one, for example? Has the Council found good water supplies?

Mr. OLSON. Absolutely, we cite some. For example, Cincinnati, Ohio, recently installed state-of-the-art treatment technology. They had local officials that sort of looked forward to the next 10 or 20 years of what they needed and replaced outdated equipment with state-of-the-art equipment.

There are some other cities that are actively protecting their watersheds and have management programs where they are purchasing the areas upstream so that they will not be contaminated or at least imposing regulations upstream so that their water won't be contaminated. Those are the kind of activities, both protection of the watershed itself and making sure that you have state-of-the-art treatment if you can't fully protect your watershed, that we think are necessary.

Fairfax County, by the way, also, has a pretty good water system. As I said in the written testimony, they shifted over to granular-activated carbon, which is the same system that is being used in Cincinnati.

Mr. MORAN. Is that the Occoquan Reservoir?

Mr. OLSON. Yes.

Mr. MORAN. So you feel that we are not adequately protecting the source of the water and our plant is not up to standard in terms of purifying it and processing it in a modern way? The plant is outdated and we are not adequately protecting, from an environmental standpoint, the source of the water?

Mr. OLSON. Yes, and I think an analogy to the general infrastructure problems of the country is apt, because we have been hearing a lot about the infrastructure for roads and infrastructure for other purposes, bridges, but we have got a very aging infrastructure for water supply. And, you know, we heard just this morning that some of these pipes were built in the 1850's. Some of the treatment plants are over 50-years old. Some of them are even older in the rust belt. It is time we start investing in this infrastructure and there hasn't been a lot of public debate about it.

Mr. MORAN. Well, this will certainly get the debate off to a flying start. If nothing else, it certainly highlighted the issue. And I appreciate your calling the hearing to do that, Ms. Norton. And we appreciate the people who played a constructive role and those who have focused on what needs to be done to prevent it from occurring in the future.

Ms. NORTON. Thank you, Mr. Moran.

And I want to thank these two witnesses as well. Your testimony was just as vital as those we heard before. We appreciate your waiting through the long delay.

If I could close the hearing by making some summary remarks.

The EPA and the Corps have, of course, heard what they expected—some criticism of their action—and they have brought in self-criticism to the table. Nevertheless, I think there is no criticism of their having taken precautionary action, even though cryptosporidium, in fact, did not turn out to be in the water supply. Perhaps Milwaukee, a rare occurrence, made their action more likely. In any case, with the inconvenience that it caused, we would certainly prefer that it occurred rather than to have an audit done that said maybe it should have occurred but that they didn't do it. We are concerned that the turbidity got into the distribution system. We still do not know why.

I asked that question directly. The Corps and the EPA do not know why yet. They have indicated that there was human error. But they cannot now, as yet, at least rule out other causes as well.

It is clear that—if you will forgive me—there were some seat-of-the-pants procedures operating here. Perhaps the Corps and the EPA were victims of their own success. We have never had such an alert here before. And in this country, we tend to operate by crisis rather than to take precautions, because precautions involve the government and sometimes cost money and take planning. We are not the best planning society. When it comes to water, which is fundamental, taking precautions and getting a plan after the fact is not good enough.

We will look to the Corps to design a plan and are satisfied that they understand they are supposed to do that. I remain concerned about the outside audit, because that audit was planned before this episode, and the events of December have to be factored in after

the fact, I was not satisfied that the audit will take comprehensively into effect the events of the turbidity crisis. That is why I have asked the Corps to submit to the committee a copy of the plan of work for the outside audit.

We are, I think, unanimous in believing that any circumstance of this kind involving an entire region and a million people, needs, for your benefit and for the benefit of the public, to have the oversight of a completely disinterested party. Nobody will believe you if it is you or the chain of command. Nobody will believe you if it is the EPA or the chain of command there because they were involved and implicated here. An absolute outside audit of what happened here is necessary, particularly in light of the fact that the Corps has not had oversight at all in its dealings.

We are concerned about the notion of funding and the loss of the ability to borrow from the Treasury, especially in light of the fact that we probably would prefer that now, and yet there was a deficit and that will have to be worked out.

We know that the jurisdictions are clear that the up-front payment is itself a burden, and that if—and we do not know this yet—there are capital expenditures, we need to plan ahead how that is going to be done and not expect that these jurisdictions are prepared to simply jump to whatever may be needed with the money in hand. These jurisdictions have all been under great pressure during the last several years just to bring the ordinary services to their residents.

Finally, I am particularly concerned about the lack of accountability here. And that is a structural problem that may not be the fault of the Corps, but the Corps has not gone out of its way to make itself accountable to anybody but the EPA, and the EPA doesn't put up the money for the water that is delivered in this immediate region.

I have a letter here from the Chief of Washington Aqueduct, Perry Hoftus that was sent on October the 27th to Linda Cheetum, who is Director of the Office of Budget of the District of Columbia.

Dear Ms. Cheetum, the Washington Aqueduct is a Federal agency owned and operated by the U.S. Corps of Engineers. As a Federal agency, our capital projects are not subject to the Mayor's discretion; however, we are submitting the capital project assessment information requested in your memorandum of October 14th, 1993. In accordance with introductions from the Capital Program Coordinating Office, we have used the information provided on the Capital Project Assessment Sheet. This information is incorrect. We will submit a corrected spreadsheet in the near future. Sincerely,

This letter indicates that while the budget is submitted, it is not subject to oversight and review and in a democracy, that is simply not appropriate. This committee will have to look into ways to see that the proper oversight occurs. When you have two Federal agencies, and three, indeed four local jurisdictions involved, that is not something that is new. We will not have to reinvent the water system or the oversight system in order to make sure that that happens.

I want to finally thank Chairman Doug Applegate and the committee staff who on very short notice, to say the very least, put this hearing together. It took enormous bringing together of brains and brawn in order to do so. And yet, it was very, very necessary.

The last thing we need in the Capital City of the United States are conspiracy water theories throughout the region about what may have caused it and what may not have caused it.

We do have some information that is solid to go on now. We know that nobody put anything in the water. We know that there was some human error. We know that there is or will be a comprehensive outside review of what happened to reassure the public. And I can say now on the basis of what I have heard here, this morning and this afternoon, that there will be another hearing where we will evaluate the investigations that are now ongoing. I want to thank all the witnesses, including those who were most on the hot seat, the EPA and the Corps, for their candid testimony. And for coming forward on such short notice this morning.

The hearing is adjourned.

[Whereupon, at 12:59 p.m., the subcommittee was adjourned.]

PREPARED STATEMENTS SUBMITTED BY

WITNESSES

Testimony of Ruth R. Crone
Executive Director
Metropolitan Washington Council of Governments

United States House of Representatives
Public Works and Transportation Committee
Subcommittee on Water Resources and Environment

December 20, 1993

Chairman Applegate and members of the Subcommittee.
My name is Ruth R. Crone and I am the Executive Director
of the Metropolitan Washington Council of Governments.
I am pleased to have the opportunity to present comments
to the Subcommittee on Water Resources and Environment
regarding the December 8, 1993 drinking water supply
incident at the Dalecarlia Water Treatment Plant and the
ensuing regional response. I am especially grateful that
Congresswomen Norton and Byrne, both members of the
Council of Governments, are present at today's hearing.

Background

The Metropolitan Washington Council of Governments
(COG) is a voluntary, regional organization comprised of
eighteen member, local government jurisdictions
throughout the Washington metropolitan region. For more

than thirty-five years, COG has provided regional services and information for its members. Through its local governments, COG has worked to shape and enhance the quality of life in the metropolitan region. Much of that effort has been accomplished through COG's regional forums, which promote the discussion and resolution of a wide array of transportation, environmental, public safety, human services, economic and informational issues.

As a regional organization, COG is responsible for inter-jurisdictional policies, plans and programs. In addition, the organization analyzes regional needs for the Washington metropolitan region, and develops region-wide action plans for the program areas previously mentioned.

The incident at the Dalecarlia Water Treatment Plant was of regional concern and highlighted the importance of maintaining a safe drinking water supply and supporting a strong regional emergency response capability.

As a result of this incident, and because of the regional coordinating role that COG played during this incident, I believe it is important to provide testimony on behalf of the COG membership to the House Subcommittee on Water Resources and Environment. The information that is presented here today reflects COG's role and responsibilities during this incident, our assessment as to the ability of the existing local water supply and emergency agreements to address such incidents now and in the future, and proposed recommendations for further action.

COG's Response to the Water Emergency

Early in the course of the water emergency, on December 8 at approximately 6:00 p.m., COG was asked by Robert Mallett, City Administrator for the District of Columbia and Tony Gardner, Arlington County Manager, to establish a regional command center. Although COG has played a pivotal role in responding to numerous emergency situations by helping area local governments and state and federal agencies to develop emergency response

policies and plans, this marked the first time that COG was asked to establish a command center in our facilities.

The purpose of the COG command center was two-fold. First, to provide a central information contact for the public and others seeking accurate and current information on the water emergency and necessary precautions, such as boiling water or using bottled water for drinking or cooking purposes. The second purpose was to provide key federal and local officials with a location where information could be exchanged quickly among all the relevant officials.

Within approximately two hours of the request to establish the command center, COG obtained a telephone number (962-3217) for public inquiries, installed twelve telephones and obtained volunteers from COG and local government and federal agencies to help staff the phones. In addition, EPA and local health officials prepared concise information for volunteers to pass along to concerned area residents who called the water hotline.

The COG water information center hotline was open 24 hours a day, from the first evening of the emergency on Wednesday to its conclusion on Saturday afternoon, and for two days following to ensure that all area resident inquiries were answered.

I believe the results of this command center operation were impressive. Approximately 50 volunteers from COG and federal and local agencies responded to more than 15,600 calls from the public. Although direct costs for telephone, photocopying and other expenses are not yet tabulated, we estimate that volunteers provided approximately \$22,000 in staff time at the COG command center

In addition, federal and local health officials were on-site at COG throughout the water emergency. Officials worked around the clock to address the treatment and filtration problems and restore service to affected communities. Officials also sought to provide the latest information to the media and the public. By having all the relevant actors together in one location, internal

decisions could be and were made quickly.

COG's Ongoing Role in Emergency Response

Since the 1970's, COG has been actively involved in developing plans and agreements for all types of contingencies. In addition to a water emergency, COG plans address snow, power, natural gas, transportation, motor fuel, severe weather, and METRO rail emergencies. COG has been instrumental in developing police mutual aid and fire mutual aid agreements, and a comprehensive Greater Metropolitan Area Mutual Aid Operational Plan -- following the twin disasters of Air Florida and the METRO derailment of January 12, 1982. These agreements have the support and involvement of all the jurisdictions in the region.

COG Committees operate and test police and fire mutual aid radio systems, the local emergency broadcast system and a teleconferencing system for use in emergencies. Police and fire officials use an incident command system at accident scenes, and train extensively

through COG on a variety of disaster exercises and drills for regional and local emergencies.

COG has a Disaster and Emergency Preparedness Committee, composed of local government emergency management personnel, who meet bi-monthly to discuss all facets of disaster planning from availability of cellular phone lines to donations coming into a disaster area.

Whether through plans, procedures or trained personnel, COG is leading the effort to mitigate the effects of any potential disaster.

Regional Water Supply Agreement

In 1979, a Regional Water Supply Emergency Agreement (WSEA) for the Potomac River was adopted by fifteen local governments in the Washington region as well as the Fairfax Water Authority, the Loudoun County Sanitation Authority, the Washington Suburban Sanitary Commission and the Metropolitan Washington Council of Governments. It was the result of a two-year effort to organize and

consolidate the water emergency procedures of individual utilities. The Agreement coordinates area-wide water conservation as well as curtails water use during periods when water supply demands are exceeded. It also delineates steps necessary for an immediate and coordinated response in the event of a water supply shortage or outage.

The Water Supply Emergency Agreement (WSEA) consists of two parts, the Potomac Low Flow Allocation Agreement (LFAA), which pertains to raw water in the Potomac and the Water Supply Emergency Plan (WSEP), which relates to water shortages. Together they define the region's response to water supply emergencies. Essentially, the Low Flow Allocation Agreement identifies Potomac River stages and shortages and allocates available water to suppliers according to a set formula. The second element is the Water Supply Emergency Agreement, which specifies conservation measures during water outages and water shortage stages set by the Low Flow Allocation Agreement. In addition, the Agreement also provides the framework by which information is released to local governments,

businesses, and the public on the nature of the emergency and conservation measures to be taken.

Much has changed in terms of the Washington region's water supply since the WSEA was adopted over fourteen years ago: 1) the Jennings Randolph Reservoir in western Maryland and Little Seneca Reservoir were both constructed to supplement Potomac River during low flows; 2) the Interstate Commission on the Potomac River Basin Section for Cooperative Water Supply Operations was established to track river flow, withdrawals and to schedule releases from the reservoirs; 3) the signing, in 1982, of eight separate but related agreements designed to insure sufficient water usage during low flow conditions; and finally, 4) the construction of two new water treatment facilities (Leesburg, Virginia and Frederick County, Maryland).

Although the Water Supply Emergency Agreement originally was developed to primarily address drought conditions, the framework and response mechanisms outlined in the plan and other COG emergency response

plans were useful in dealing with the December 8 emergency. Nevertheless, regional water supply agreements have been found to be outdated and may no longer be relevant to current and future regional and local needs. Recognizing this problem COG, over the last several years, has initiated a review and assessment of these agreements in order to identify the changes necessary to update and strengthen regional water supply agreements and plans. Unfortunately, our efforts and progress have been slowed because of limited available funds.

Again this year, additional but limited COG regional funds and resources have been allocated toward assessing as well as initiating the activities necessary to update the region's water supply coordination and response. The recent regional incident at the Dalecarlia plant as well as the oil spill incident this past Spring at the Sugarland Run, heightened the region's awareness as to the need to intensify our efforts. Such efforts will require a great deal of technical and policy coordination as well as numerous meetings with our regional local

governments, the regional water utilities, and with key regional, state and federal personnel.

COG had originally scheduled to begin its formation of a water supply agreement and plan analysis by January 1994. As a result of this most recent incident our timeline for this project has been accelerated. It should be noted that even at the conclusion of these initial efforts, additional important work will remain, especially in the development of a regional water supply emergency response plan. Such an effort will require a significant amount of additional funding and resources.

Summary and Recommendations

As a result of the Dalecarlia and Sugarland Run incidents, COG is committed, more than ever, to its efforts to assure that essential regional water supply coordination, planning and notification is undertaken. As a region, we must ensure a safe and reliable source of water for our citizenry, as well as ensure that we have in-place, appropriate emergency response and notification

procedures, should an incident of this nature occur again.

Our region was fortunate this time. No lives were lost and based on area health department information to date. No area residents became ill due to contaminated water. Our region was also fortunate in that we had a forum -- COG -- that enabled key federal and local decision-makers to quickly come together to respond to this crisis. Further, we were able to mobilize COG and federal and local government staff and technical resources to inform the public on the status of the problem and proper precautions.

We have learned much since December 8, but more study and work must take place if we are to ensure that our region has a safe and steady supply of water and that we have appropriate plans in place to address all likely contingencies.

It is COG's intention to address this problem as quickly as possible. Toward that goal, COG will be

briefing area local government administrators and managers on the water emergency in early January. We also anticipate a similar briefing to the COG Board of Directors and relevant policy and technical committees. As a result of these meetings, we expect to sponsor a regional summit by late January on the water emergency. Follow-up will also require technical sessions with appropriate federal and local agencies to revise the Water Supply Emergency Agreement and its two components to improve the regional response needed in the future.

COG looks forward to working with the Environmental Protection Agency, U.S. Army Corps of Engineers, the U.S. Centers for Disease Control and local health, emergency preparedness and water utility officials to carefully examine our respective roles and responsibility to protect the public and our region's water supply.

At a minimum, we anticipate seeking an EPA or Corp-sponsored assessment of water treatment facilities to ensure the technical integrity of those facilities and their operational policies and procedures. Further, we

would urge federal support and assistance in developing a stronger and more effective regional water supply emergency agreement and response plan.

Mr. Chairman and members of the Subcommittee, I would like to take this opportunity to once again thank you for allowing the Metropolitan Washington Council of Governments to speak on this issue of concern to our entire region. We are committed to the continued improvement of all aspects of our region's water supply and response capability, and look forward to working with members of this Subcommittee and federal and local agencies to ensure our shared goals are met.

Thank you.



THOMAS M. DAVIS, III
CHAIRMAN

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THE HONORABLE THOMAS M. DAVIS, III
CHAIRMAN, FAIRFAX COUNTY, VIRGINIA BOARD OF SUPERVISORS

**TESTIMONY BEFORE THE HOUSE PUBLIC WORKS SUBCOMMITTEE
ON WATER RESOURCES AND THE ENVIRONMENT**

Monday, December 20, 1993

Good morning Mr. Chairman, Mr. Petri, and Members of the Committee. My name is Thomas M. Davis, III. I am Chairman of the Fairfax County Board of Supervisors and am pleased to be here today representing my fellow Board members as well as the 850,000 residents of Fairfax County. I very much appreciate the opportunity to share with you our perspectives regarding the management of last week's water crisis. Because of the type and seriousness of the difficulties involved in that incident, the Fairfax County Board of Supervisors has called for a regional water summit to establish and improve procedures for water emergencies.

The presence of at least 10 local jurisdictions in two states and the District of Columbia presents a challenge in responding to any type of emergency. However the crisis highlighted several significant but preventable problems in the federal and regional responsibilities.

NOTIFICATIONS

A regional contingency plan for potable water emergencies is in place, but was not followed. Notifications to affected local governments were not in accordance with the Metropolitan Washington Water Supply Agreement which requires the water supplier (in this instance, the Corps of Engineers) to notify local governments, among others. By not following the prescribed method of notifying affected jurisdictions, local jurisdictions were placed in a reactive position with respect to the nature of the emergency.

The Fairfax County Health Department and the Fairfax County Water Authority were notified of the EPA "Boil Water Notice" by phone by the Virginia Department of Health Culpepper office at 3 p.m. on Wednesday, December 8. The County was not allowed to review or comment on the draft news release of the EPA "Boil



Water Notice" and the County was not provided a copy of the notice until two hours later--after it had been released to the media. Only then did we discover that Fairfax County residents had not been included in the language of the notice. Trying to correct this problem once the initial notice went out was the equivalent of trying to get the genie back in the bottle. This omission caused great confusion, fear and concern among County residents and generated thousands of calls. Had the County been provided with the opportunity to review the notice prior to its being issued, we would have been able to specify the areas of the County which were affected and could have eliminated a problem which never needed to exist.

The EPA (rather than the water system operator as called for in the regional contingency plan), notified the public via a press conference, which caused confusion on at least two fronts:

- 1) the extent of the problem was not known for some time, i.e. which areas in Fairfax County were affected, and
- 2) by not using prescribed Emergency Management Notification Procedures, all appropriate officials were not notified in a systematic and timely manner, thus creating a degree of confusion and loss of time in activating communications systems.

Additionally, the timing of the news conference, so that it took place after normal working hours, necessitated a recall of needed personnel to staff hotlines and provide information. This caused delays in full-scale operations. The method and timing of notification to the city of Falls Church water system and the Fairfax County Water Authority should be examined to determine how delays can be prevented in the future.

The federal government has primary jurisdiction over the Dalecarlia Water Treatment Plant since it is situated in the District of Columbia. Neither the Corps of Engineers nor the EPA communicated directly with all the Chief Executives of the affected jurisdictions during the evolution of this problem. The Office of the County Executive was not contacted by EPA or Corps officials until two days following the event. The City Manager of the City of Falls Church was never phoned by the EPA or the Corps. The town of Vienna's entire population was affected and we don't believe that appropriate authorities ever contacted town officials either. I assume the City of Falls Church will be providing you details as to the way its officials were contacted. Both Vienna and Falls Church are geographically located within Fairfax County.

Communication from COG staff during this incident was inconsistent and incomplete. The Fairfax County Office of Emergency Services and Health Department were not contacted in a

timely manner by the Council of Governments as the incident unfolded. In fact, the Fairfax County Health Department was not notified by COG staff of several of the regional meetings on this issue.

Fairfax County was not invited to the initial meetings held during the incident. These meetings were especially crucial during the first 24 hours.

Prior to the televised press conference (which, by the way is how we were instructed to find out what was going on!), we were told that "officials" were briefing the mayor on the issue. Other affected jurisdictions should have been invited to those briefings or should have been briefed separately.

HOTLINES

Because there had been no communication from the federal agencies, the County did not know that EPA and COG were establishing hotlines. In light of the lack of mention of Fairfax County in the initial notice, we set up a hotline ourselves to help with the thousands of phone calls from citizens trying to determine if they were affected. I am proud to say our hotline was up and running almost immediately after we saw the press conference, and was receiving 250 calls an hour for the first 24 hours. An additional 3,200 calls were received by the Fairfax County Water Authority as well.

Fairfax County was never officially informed of the hotlines, was not advised as to the official information being offered on the hotline, nor did we ever officially receive the "Water Use Tips" issued by COG. There should have been a reliable system for disseminating that information.

NON-ENGLISH TRANSLATIONS OF MATERIALS

In a television interview Thursday morning, officials at the COG command center indicated that they had worked throughout the night to translate the "Boil Water Notice" into several languages and were distributing it in the communities. The County began trying to get copies of those translations by 8 a.m. but was unsuccessful. We were finally told they did not exist except for a Spanish language translation. Meanwhile we were losing precious time and finally went ahead and translated them ourselves. We were able to have the translations done and out into the community by 1 p.m. We also provided those translations to COG. When we finally did receive a copy of the translation from the COG command center, it was geared specifically to the District of Columbia. A more generic translation would have been more useful for the jurisdictions involved.

CONFLICTING GUIDANCE

During the course of events, conflicting guidance was put out by three different agencies on how long water should be boiled to render it potable, varying from one minute to 10 minutes. Fairfax County Health Department followed the Virginia Department of Health recommendations which specified boiling potentially contaminated water for ten minutes. The D.C. Commissioner of Public Health announced to the news media that the water need only be boiled for one minute. A representative from the federal Centers for Disease Control (CDC) in Atlanta who attended the COG meeting on Saturday, December 11, concurred with the one minute recommendation although subsequent calls by the Virginia Department of Health staff to CDC were unable to confirm that recommendation. This was effectively resolved in time by the EPA. However, a loss of confidence in officials handling the situation was reflected in the calls Fairfax County received on its hotline.

During any emergency, it is imperative that correct information be passed along to local officials and to the community. Communications channels have been established for such purposes, but were not followed.

REGIONAL AGREEMENTS

The Metropolitan Washington Water Supply Agreement had not foreseen two significant circumstances that impacted this event. First, it had never been envisioned that an outside agency (EPA) would come in and take over direction and control of the event by default of the water supplier (Corps of Engineers) and the local government (District of Columbia). Direction and control was exercised by an agency (EPA) which was not a signatory to the Plan and in all probability had not ever seen the Plan. Secondly, the Plan's main emphasis is on managing water quantity problems and not water quality problems, thereby not fully addressing the responsibilities of coordinating with the regions health officials to ensure an effective response.

RECOMMENDATIONS

It is recommended that a regional protocol be established for early notification of all affected jurisdictions in this type of situation. It appears that EPA knew about the problem at least one day before the "Boil Water Notice" was issued. There should be an early warning system to alert affected jurisdictions (state and local governments) of a potential problem to allow them to prepare for the situation as well as the onslaught of inquiries.

Health Departments throughout the metropolitan area should develop concise recommendations on measures such as the "Boil Water Notice" in order to avoid the confusion created by the conflicting recommendations.

The region needs to improve its capacity to quickly and accurately translate public information into multiple languages to meet the needs of our non-English speaking residents and it should be done so that it is applicable to all residents and all jurisdictions.

There is a need for improved methods by which COG staff communicate with the points of contact in each jurisdiction.

This event highlights the necessity for continued regional planning--more events in the future are liable to impact multiple jurisdictions and agencies. Regional planning must stay abreast of the hazards and their impacts. Consideration must be given to a regional means for managing emergencies and disseminating information which impact multiple jurisdictions.

Finally, plans must be periodically exercised to ensure that they are adequate and the players know their roles.

While I have spent a lot of time outlining what went wrong, there was much that also went right. Our Health Department mobilized 25 staff persons on very short notice. Critical water users such as nursing homes, schools, hospitals, food service establishments, and day care centers were promptly notified. Our Office of Emergency Services established a hotline within the first hour following the press conference and we received a total of over 12,000 calls to both the hotline and the County Water Authority line--calls mostly from people trying to determine if they were affected. Our Office of Public Affairs immediately issued clarifying language regarding Fairfax County water users in affected areas of the County including Tysons Corner, 7 Corners, McLean, Vienna and other affected areas and had information immediately broadcast on our cable television station. This broadcast information continued throughout the water emergency. We issued maps of affected areas and a "Water Use Tips" brochure in four languages to all 22 county libraries, police district stations, recreation and community centers, fire and rescue stations, governmental centers, senior centers and other public areas.

I am extremely proud of Fairfax County's response to this incident and feel that whatever issues surfaced in terms of coordination and communications can be resolved in a regional manner--one which will benefit all of the citizens in the Washington Metropolitan area. Thank you for the opportunity to speak to you today.

DEPARTMENT OF THE ARMY
COMPLETE STATEMENT
OF
MAJOR GENERAL STANLEY G. GENEGA, DIRECTOR OF CIVIL WORKS
U.S. ARMY CORPS OF ENGINEERS
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES
HEARING ON
THE RECENT WATER SUPPLY PROBLEM OF THE WASHINGTON AQUEDUCT

20 DECEMBER 1993

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE. . .

I am here today to testify on the role of the Army Corps of Engineers in the provision of an adequate and safe water supply and the recent water supply problem that affected residents of the District of Columbia and neighboring communities in Maryland and Virginia.

Mr. Chairman, the citizens who are served by the Washington Aqueduct Division of the Army Corps of Engineers deserve to have an ample supply of safe water. They should be able to turn on the tap with no concern at all about the quality of their water. My staff and I are deeply disturbed that this confidence has been shaken by our recent failure to meet the turbidity standard at Dalecarlia Water Treatment Plant. I assure the Congress and the affected public that we in the Army Corps of Engineers are committed to providing adequate and safe water to our customers and to restoring public confidence in our ability to do so.

In my testimony, I will first provide a historical perspective on the Washington Aqueduct, then explain the water treatment process at the plant, and finally recount the events and conditions that led to the emergency. I will also describe major actions taken by the Corps to prevent a recurrence of the problem and to restore public confidence in our operation.

HISTORY OF THE WASHINGTON AQUEDUCT

By the mid-1800s, Congress realized that a municipal water system was essential for the growing city of Washington. In 1853, they adopted a Corps of Engineers plan and appropriated Federal funds to construct the Washington Aqueduct. The plan

included construction of a dam at Great Falls on the Potomac River; intake works on the Maryland shore; a brick and stone conduit between Great Falls and Georgetown; a receiving reservoir at Dalecarlia for sedimentation; a downstream reservoir at Georgetown for further sedimentation; and cast-iron pipelines leading from the Georgetown Reservoir to various sections of the city. The project was placed under the control and supervision of the Corps of Engineers, where it has been ever since. Over the years, many additions and improvements have been made including McMillan Reservoir, a second conduit from Great Falls, filtering and chemical treatment facilities, and another intake facility at Little Falls. Currently, the Washington Aqueduct has the capacity to purify and distribute a maximum of 250 million gallons per day (mgd). I have attached a more detailed history of the Washington Aqueduct as an appendix to this testimony.

WATER TREATMENT PROCESS

The mission of the Washington Aqueduct is the collection, purification, and transmission to distribution systems of an adequate supply of water for the following areas: District of Columbia, Arlington County, City of Falls Church, Federal facilities including the Pentagon, National Airport, the Defense Mapping Agency, and Fort Myer. Water distribution is the responsibility of the local governments, except for the Federal facilities in Virginia and Maryland.

The Washington Aqueduct system consists of facilities required to collect water from the Potomac River, convey it to Washington, D.C., and treat and pump it into the distribution system. These facilities include dams, conduits, reservoirs, filtration plants, pumping stations and transmission mains. The Potomac River is the source of water for all the District of Columbia's water distribution system.

Intake

Water supply intakes are located at Great Falls, Maryland, about 10 miles northwest of the District of Columbia boundary, and at Little Falls, Maryland, approximately one and one-half miles upstream from Chain Bridge.

At Great Falls the river has a drainage area of 11,460 square miles. The average discharge is 7.1 billion gallons per day. The Great Falls intake capacity to the Washington Aqueduct is approximately 200 mgd.

The 1,500-foot diversion dam, intake works and pumping station at Little Falls on the Potomac River are remotely operated and provide an additional independent raw water supply with a 575 mgd capacity.

At the point where the water enters the Dalecarlia Reservoir, water samples are taken every four hours to measure turbidity. Turbidity readings are a measurement of the cloudiness of water and indicate the amount of suspended matter present.

Pipelines

Two pipelines (known as the Old Conduit and the New Conduit) transport river water by gravity to the Dalecarlia Reservoir from the Great Falls intake. The Old Conduit, a part of the original system completed in 1863, travels the nine miles between Great Falls and the Dalecarlia Reservoir, with an additional two miles of pipe linking the Dalecarlia and the Georgetown Reservoirs. The maximum capacity is 100 mgd. The New Conduit, completed in 1926, parallels the old pipeline between Great Falls and Dalecarlia. The maximum capacity is 100 mgd.

Water from the Little Falls pumping station is pumped through a 10 foot diameter tunnel and rising shaft into the main Dalecarlia Reservoir.

Reservoirs

The Dalecarlia Reservoir is an earth-embankment, settling and storage reservoir. It is 46 acres in area, with a normal working capacity of 41 million gallons. This reservoir provides up to one and a half days of natural pre-sedimentation prior to treatment.

A remote-controlled booster station maintains the reservoir water levels to ensure adequate flow in the system. The booster station has three main pumps, each with a 108 mgd capacity, and a single pump of 50 mgd capacity, all electrically driven. Water from Little Falls Pumping Station is pumped directly into the main Dalecarlia Reservoir.

The Georgetown Reservoir is an earth-embankment storage reservoir. It is 42 acres in area, with a storage capacity of 55 million gallons. The reservoir is used as a settling basin for the water destined for the McMillan Water Treatment Plant.

The Washington City Water Tunnel is four miles long connecting the Georgetown Reservoir to the McMillan Reservoir. The maximum capacity is 150 mgd.

The McMillan Reservoir is an earth-embanked area of 38 acres with a usable capacity of 120 (180 maximum capacity) million gallons.

Treatment Facilities

The Dalecarlia Water Treatment Plant is a rapid-sand filter plant with a nominal capacity to 164 mgd (maximum capacity 250 mgd). This plant receives raw water from the Dalecarlia Reservoir. A flow diagram of the treatment plant is attached to this testimony to illustrate how it functions.

Aluminum sulphate, or alum, is fed continuously to the raw water to facilitate coagulation and sedimentation, i.e., removal of suspended particles. The mixing of alum with raw water results in flocculation which takes place in chambers known as sedimentation basins. "Floc" particles collect the suspended matter from the raw water as the water passes slowly through the sedimentation basins where the heavier suspended matter can settle to the bottom. Removal of the "floc," together with the

entrapped particles and bacteria, occurs in the sedimentation basins.

There are four concrete sedimentation basins. The retention period in the sedimentation basin is four to six hours. These basins generally are flushed out three or four times per year.

Before the water moves from the sedimentation basins to the filtration area, turbidity readings are taken once again. Also at this point, chlorine for disinfection is applied.

From the sedimentation basins, the settled water flows by gravity to 36 rapid sand filter beds. The filters nominally can handle four or six million gallons per filter per day, at a rate of two gallons per minute per square foot. Gravel, sand and crushed anthracite coal are used as filter media. The filters are cleaned by backwashing with filtered water. Rotary surface sweeps are used during the backwash operation.

Upon leaving the filtration area, water quality measurements, including measurement of turbidity, are taken to ensure the water meets EPA standards for filtered water. Following filtration, more chlorine is added, if necessary, to obtain the desired amount of chlorine in the finished water. Powdered, activated carbon may be applied to remove objectionable tastes and odors, and sulphur dioxide may be added to remove excess chlorine. Quick-lime is added to adjust the pH and to control corrosion in the distribution system. Fluoride is added to promote dental health.

Finally, the filtered and treated water is collected in covered concrete clear water basins with total reserve storage of 45 million gallons. Water samples and readings are taken again prior to customer distribution.

The main brick and concrete filtration plant building houses chemical storage bins, chemical feed equipment, and a complete waterworks laboratory.

The McMillan Water Treatment Plant capacity has a nominal capacity of 120 mgd with a maximum capacity of 180 mgd. The plant includes a chemical building containing a central control room, chemical unloading, handling and storage areas, chemistry lab and records storage and maintenance rooms. The filter building contains 12 rapid sand filters. A significant feature of the McMillan Plant is the computerized central process control system.

The McMillan Water Treatment Plant was closed for yearly routine inspection and maintenance at the time of the problem at Dalecarlia. The plant had been scheduled for a shut-down beginning November 10, 1993, for construction and maintenance. That work has now been completed, and the plant is expected to be back on line the week of December 20.

Funding

Although the Federal Government owns, operates and maintains the Washington Aqueduct, the funding mechanism for the facility is under the jurisdiction of the Government of the District of Columbia. Funds for operating and maintaining the facility are

derived solely from the sale of the water to the municipalities serviced. These water revenues are deposited into the District of Columbia Water and Sewer Enterprise Fund. The Washington Aqueduct provides over \$6 million per year directly to the Water and Sewer Enterprise Fund from the sale of water to Arlington County, Virginia, and to the City of Falls Church, Virginia.

Since the Water and Sewer Enterprise Fund is under the jurisdiction of the District of Columbia, budget requests for reimbursing the Federal Government's operation and maintenance expenses are submitted to the Congress along with the District of Columbia Budget as a part of that budget. Funding requests are prepared by the Baltimore District, Army Corps of Engineers, and submitted through the District of Columbia Budget Office to the Congress. The requests have typically been approved by the Congress as submitted.

Capital Improvements

Although the Washington Aqueduct System can meet current-day water quality standards, planned capital improvements will enhance reliability and quality of water. Planned improvements include computer upgrade and maintenance facilities at McMillan Water Treatment Plant and computer controls, filter renovation, and chemical system renovation at Dalecarlia Water Treatment Plant. Reservoir dredging and a study of alternative treatment methods is underway. Capital improvements are funded by "pay upfront" charges to customer communities.

Water Quality Testing

To comply with EPA requirements and to assure that we are providing safe water to the public, the Washington Aqueduct does over 300,000 lab analyses yearly from sample points in the distribution systems, treatment plant finished water, treatment plant process control and the Potomac River. This includes about 33,000 bacteriological and chemical sample analyses from the distribution system, 15,000 sample analyses from finished water and 15,000 sample analyses from the treatment plant process control and raw water.

The Aqueduct tests for approximately 23 different metals, including arsenic and mercury; 140 organic compounds, including pesticides, asbestos, cyanide, and dioxin; and 24 inorganic parameters.

The distribution system and treatment plant finished water samples are analyzed in the Dalecarlia EPA-certified laboratory which also checks the analyses performed during the treatment plant process control.

WATER QUALITY VIOLATION -- HOW IT HAPPENED

Colonel J. Richard Capka, Baltimore District Engineer, has begun his investigation into the events surrounding this month's water quality violation. Based on preliminary findings, he has concluded that human error was a factor.

The investigation, thus far, has revealed that there was not a proper and timely response to the rising turbidity levels in the raw water being drawn from the Potomac River. This lack of response directly resulted in filtered water turbidity levels exceeding EPA established standards.

At or about 5 p.m. on December 6, a marked change in the raw water turbidity levels occurred. The amount of aluminum sulfate, or alum, that was being added to the raw water should have been increased to compensate for the rising raw water turbidity levels. Alum adjustments were not made until more than two hours later. This allowed water with excessive levels of turbidity (suspended matter) to enter the filtration stage of the process. The capacity of the operating filters was exceeded. Despite efforts to mitigate the problem by decreasing and diverting flow to other filters, and adding a filtration assisting chemical to the system, by 1 a.m. on December 7, the filtered water turbidity levels exceeded the EPA standard of 5.0 Turbidity Units (TUs), at 6.5 TUs. The levels at 2 a.m. and 3 a.m. were 9.0 and 6.5 TUs respectively. All subsequent levels were below the 5.0 TUs threshold.

The EPA Turbidity Units standard is comprised of two parts. First, no reading may exceed 5.0 TUs. Second, not more than five percent of the total hourly readings in any one month may exceed 0.5 TU. High turbidity measurements indicate that the treatment process was not working properly and that contaminants, such as the protozoan parasites cryptosporidium and giardia, may have passed into the distribution system.

By 7 a.m., Tuesday, December 7, Washington Aqueduct senior managers were reviewing the data that had been collected during the period in question to ensure that the data and facts were accurate. They concluded that a violation had, in fact, occurred. They notified EPA Region III at about 2:00 p.m.

The turbidity levels were continuously monitored and system adjustments were made so that by 4 p.m. on Wednesday, December 8, the filtered water turbidity levels were below 0.5 TU.

At approximately 5 p.m., Wednesday, December 8, EPA announced a boil water advisory for all customers of the Washington Aqueduct.

CORRECTIVE ACTIONS BEING TAKEN

Prior and subsequent operations verify that the plant is capable of providing quality water that meets all EPA standards. It had been providing quality water prior to the incident and is now.

Once management realized the circumstances, we notified EPA and per EPA's direction, we conducted two successive days of tests for the presence of cryptosporidium and giardia. Those tests returned "all clear" results. A subsequent third sample received on December 13, 1993, was also completely clear of the two protozoa.

We had accomplished all quality control assurance tests required by the EPA in order to determine whether the boil water

advisory could be lifted. That advisory was lifted by the EPA on December 11, 1993.

We have made immediate adjustments in the plant operations to prevent recurrence of the turbidity problem. The crew members who were on the shift when the rising raw water turbidity levels occurred have been relieved of their filtration unit duties until completion of the final investigation. Additional supervisory surveillance of shift operations and quality control data analysis have been provided.

Additionally, we have undertaken the following longer range measures to ensure that we have a complete independent evaluation of the entire plant operations:

- o Peer Review. We have asked the operator of another major water treatment facility to provide us with an assessment of the operations.

- o Independent Comprehensive Performance Evaluation. We will contract with a consultant who is a recognized expert in the water field to perform this evaluation. The scope of work for this study has been coordinated with EPA and covers all plant operations from management through the efficiency of water treatment processes. The results of this study will also form the basis for adjustments to our long range capital improvements program to maintain an up-to-date operating plant capable of producing an adequate and safe water supply to all of our customers.

Mr. Chairman, in closing, I would like to stress that we at the Corps empathize with the public during this situation. Many of our team members are customers of this system and our Headquarters building is within the affected area. All of our customers must have confidence in the Corps' ability to provide safe water. We are committed to thoroughly investigating the recent incident, to determining what went wrong and why, and to taking the necessary steps to assure the public that this type of incident will not reoccur.

Mr. Chairman, that concludes my statement. I would be happy to answer any questions.

APPENDIX

HISTORY OF THE WASHINGTON AQUEDUCT

In the early 19th century, clear streams, natural springs and shallow wells made up the water supply system in the sparsely populated city of Washington. About 1850, with a substantial increase in population and demand for an ample water supply system, Congress realized that a municipal water system was essential.

In response to Congress in 1852, Lieutenant Montgomery C. Meigs of the U.S. Army Corps of Engineers recommended a plan to use the Potomac River as a source of water supply. In 1853 Congress adopted Meigs' plan and appropriated Federal funds to construct the Washington Aqueduct.

Meigs' plan included construction of a dam at Great Falls; intake works on the Maryland shore; a brick and stone conduit between Great Falls and Georgetown; a receiving reservoir at Dalecarlia for sedimentation; a downstream reservoir at Georgetown for further sedimentation; and cast-iron pipelines leading from the Georgetown Reservoir to various sections of the city.

The entire project took ten years to construct and was placed under the control and supervision of the Army Corps of Engineers, where it has been ever since. Meigs was the first engineer of the Washington Aqueduct.

One of the most important features of Meigs' plan, one he hoped would provide ample sedimentation to clarify the muddy Potomac River water, was the construction of the receiving reservoir, known today as the Dalecarlia Reservoir, in the line of the conduit between Great Falls and the city.

The water remained in the reservoir for several days before it was sent out to the city. But until filtration was adopted, it was difficult to eliminate the fine, unsettled material carried in suspension which gave the city water a yellowish color for over 40 years.

In 1882, Congress appropriated money to build a third reservoir near Howard University, with the hope that the extra sedimentation would improve the quality of the water. This third reservoir was placed in full service in 1903 as the McMillan Reservoir. It had a capacity of 100 million gallons.

In 1901 Congress approved an important advance in the water supply system for Washington by authorizing a 75-million gallon-a-day slow sand filtration plant at McMillan Reservoir. It was placed in service in 1905 and provided the city with clear water for the first time.

During the 1920s the Corps expanded the facilities by building a second conduit from Great Falls to Dalecarlia, a filtration plant at Dalecarlia and various transmission mains and storage reservoirs. The additions doubled the city's capacity to bring water into the system.

Numerous acts of Congress dating from 1917 to 1947 provided the authority to supply water to adjacent Maryland areas and to Arlington County and Falls Church, Virginia. The District of Columbia Home Rule Bill (Public Law 93-198) enacted on December 24, 1973, addresses the operation of the Washington Aqueduct and specifically states that it is to remain under the control of the U.S. Army Corps of Engineers.

In 1928, a rapid sand filtration plant was completed at Dalecarlia. Other major filtering and chemical treatment facilities have been added since that time. In 1959, a second dam was built at Little Falls along with intake works and a pumping station. During the 1960s, the Corps of Engineers managed the construction of expanded filtration, chemical and administration buildings at Dalecarlia and construction of a new chemical building for the McMillan plant.

In 1972, the Washington Aqueduct supplied the metropolitan area with 74.3 billion gallons of water with an average daily consumption of 203 million gallons. Since that time, with more improvements and modernization of equipment and filtration systems, the maximum plant capacity has reached 250 million gallons per day (mgd). Purified water is pumped from the Dalecarlia Water Treatment Plant to storage reservoirs within the District of Columbia and to Arlington and Falls Church, Virginia.

Testimony delivered by James B. Hunter, III
 Chairman, Arlington County Board
 before the Subcommittee on Water Resources
 and Environment Committee on Public Works
 and Transportation, U.S. House of Representatives
 Monday, December 20, 1993

Chairman Applegate, Congresswoman Norton, Congresswoman Byrne, Congressman Gilchrest, other distinguished Members of the Subcommittee, and Congressman Moran: as you are well aware, the afternoon of December 8 is one that Arlington County residents and businesses will not forget for a long time to come. The announcement that the water from the Dalecarlia Reservoir might be unsafe — and the requisite "boil water" notice which lasted through December 11 — was a sobering new page in our regional history. Our resident's faith in what most took as a "given" — the safety of their drinking water — was called into question for the first time.

Our concerns, of course, were valid. The generalized health risk for all of us, especially those with compromised immunity, was serious indeed. We have learned some important lessons from this incident, both in terms of our ability to coalesce resources in the region and in terms of the complexity of intergovernmental decision-making. Ultimately, and fortunately, there was no cause for alarm this time; however, the governments affected by this recent emergency, plus all other governments in the region, can learn from this incident and work together on new models of shared response to emergencies which may occur in the future. I especially want to salute the staff of the Council of Governments for its excellent work throughout the days and nights of the emergency. Additionally, credit must be given to the Corps of Engineers which has appropriately taken full responsibility for the problem and is taking action to avoid repetitions.

Most important to Arlington County in the aftermath of this incident, however, is ensuring that water quality standards are met and that the public health is protected in the future. We believe that it is imperative that the Corps of Engineers' authority to borrow directly to finance its needed capital improvements at Dalecarlia is restored by the Congress immediately. We understand that the Corps has almost \$100 million in capital improvements that are either currently required, or may be needed in the next 5 years to meet possible changes in national environmental standards set by the Environmental Protection Agency.

The Corps, which provides services much like any other utility company, does not have the ability to borrow to finance its needed capital improvements like almost all other utilities. For example, if PEPCO or Virginia Power, or any other public or privately owned facility needs to finance capital improvements, they can issue bonds or borrow from other sources and amortize the capital costs over a project's life in serving their customers. The Corps' inability to borrow to finance needed capital improvements is analogous to building a toll road and expecting drivers to pay all of the project costs in the first year rather than amortizing the cost over the useful life of the road. As you are probably aware, the Corps'

inability to finance capital needs dates back to 1985 when the District of Columbia appropriately gained the authority to issue bonds directly to the public capital markets (rather than through the U.S. Treasury). At that time, the Corps lost its historic ability to borrow from the Treasury for the Corps-owned-and-operated Dalecarlia plant.

When it became clear that legislation was needed to correct the problem, we turned to our Congressman, Jim Moran. Congressman Moran will be working on a legislative remedy in the coming session of the Congress which we believe will not cost the taxpayer anything. Arlington County proposes that repayment of the costs to the U.S. Treasury by the Corps (including all interest charges) would be amortized over a 20-year period and borne by customers of the Dalecarlia plant. We hope that such legislation will receive favorable consideration.

I would be remiss if I ^{did not} ~~stated~~ that the Corps ^{has} ~~did not have~~ a capital financing plan; it does, but it envisions charging local government customers for the needed \$100 million in capital costs for the next 5 years rather than amortizing the cost over the useful life of the plant. Local governments do not have unlimited ability to either pay up front or to borrow to support the Corps' capital improvements.

We hope that the recent emergency has made everyone — not just those of us who boiled water for four days — realize the importance of a well-functioning Dalecarlia operation to the entire region.

The ultimate solution is to restore capital financing authority to the Corps. Clearly, without reasonable utility capital financing tools available to the Corps, the entire region runs a greater risk of water processing problems occurring in the future at Dalecarlia, with potential public health crisis which could have immediate impact on us all.

Mr. Chairman, this concludes my testimony. Thank you for the opportunity to appear before you this morning, and thank you for including this important public health matter on your agenda.

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**STATEMENT OF
STANLEY L. LASKOWSKI
ACTING REGIONAL ADMINISTRATOR
REGION III, U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES**

**Washington, D. C.
December 20, 1993**

Good Morning Mr. Chairman and members of the Subcommittee. I am Stanley L. Laskowski, Acting Regional Administrator of the Mid-Atlantic Region of the U.S. Environmental Protection Agency (EPA) in Philadelphia. With me today is James R. Elder, Director of EPA's Office of Ground Water and Drinking Water (OGWDW) in our Washington, D.C. Headquarters office. We appreciate the opportunity to discuss EPA's decision to issue the Boil Water Notice for the District of Columbia and portions of the surrounding area.

First I would like to provide some useful background information

Since June 1993, EPA's surface water treatment rule has required almost all public water systems that use rivers and lakes as a source of drinking water to filter their water supply. The purpose of filtering is to remove microorganisms that can cause stomach cramps, diarrhea and more serious illnesses. Filtering also removes organic particles like leaf litter that can interfere with the disinfection process and contribute to the formation of harmful disinfection products.

EPA requires very large water systems to monitor the turbidity of their drinking water at the drinking water plant every 4 hours. Turbidity is the cloudiness caused by particles in the water, and is used as an indicator of effective filtration. Water systems are also required to test for total coliform, which is an indicator of the existence of microorganisms. The Army Corps of Engineers (Corps) performs hourly measurements for turbidity at the Dalecarlia Water Treatment plant. EPA also requires that 210 samples of tap water throughout the system be tested for total coliform to ensure there has been no regrowth of organisms since the water left the treatment plant and to provide a final check of the drinking water's safety.

The decision to issue the Boil Water Notice was made to protect public health from a possible outbreak of waterborne disease, especially cryptosporidiosis, an illness which affected over 400,000 people in Milwaukee, Wisconsin this past May, and giardiasis, which has been associated with other water supplies. Cryptosporidiosis is caused by the protozoa *Cryptosporidium*, which is surrounded by a hard shell making it resistant to the chlorine used in drinking water treatment to kill other microorganisms. We feared the presence of *Cryptosporidium* and other disease-causing organisms in the finished, or treated water after learning from officials at the Dalecarlia Water Treatment plant that an unusually high level of turbidity had been detected in the water supply after filtration early Tuesday morning, December 7, 1993. Turbidity itself poses no threat to humans, but high turbidity levels after treatment serves as an indicator that disease-causing organisms might have also passed through the filters during treatment and entered the water system.

Over the past few months, EPA has paid increased attention to the Corps' treatment plants and the systems that distribute water from these plants. In September, more than 5 percent of the water samples taken from the District of Columbia distribution system and at the Dalecarlia plant tested positive for total coliform bacteria. Additionally, in one location, fecal coliform was found in the distribution system. In response, EPA issued emergency orders to the Corps and to the District government. This included a Boil Water Notice that required notification of residences in a limited area surrounding Woodson Junior High School in NE Washington. The Corps was required to closely monitor treatment and the District of Columbia was to initiate a flushing program for the distribution system.

Events that led EPA to issue the Dec. 8 Boil Water Notice

On Tuesday afternoon, December 7th, at approximately 2:00 p.m., the Corps notified EPA Region III that there was high turbidity at the plant and that they were increasing the microbiological monitoring of the water leaving the filters. In several phone calls with Corps officials throughout the afternoon, we learned that water leaving the plant exceeded EPA's standard for turbidity and that the plant was experiencing high turbidity at all their operating filters. We did not know at that time, however, the duration of the high turbidity or the similarities to the problems experienced last spring in Milwaukee. We also understood from the Corps that they were increasing the treatment in response to the high turbidity levels. At 5:00 p.m.,

EPA Regional staff reached Headquarters staff and advised them of the potential problem at the Dalecarlia plant.

On Wednesday morning, December 8th, at 8:30, Regional staff contacted the plant's Director for a better understanding of the turbidity situation. During this discussion, Regional staff were told of the duration of high turbidity and the peak levels of turbidity that were reached at the plant on early Tuesday morning. Subsequent review of plant data revealed that, although no violation had occurred prior to the turbidity levels exceeding the maximum threshold criteria early December 7, levels were slightly elevated above normal on December 5 and 6. The plant's staff indicated they were continuing their measures to reduce the turbidity to acceptable levels. We requested information about the reasons for the high turbidity levels at the plant and asked for data describing the situation. We also offered the services of Agency experts to review the data and to determine the implications of the high turbidity levels.

At 9:00 a.m. Regional staff discussed this matter with Mr. Kim Fox, a research environmental engineer from EPA's Office of Research and Development in Cincinnati. Mr. Fox, a national expert on *Cryptosporidium*, expressed concern over the high levels of turbidity that were reported and the similarities to the Milwaukee experience.

At 9:30 a.m. Region III staff called the Director of our Central Regional Lab in Annapolis, MD, to request sampling support for the Corps to increase monitoring throughout the District. At 10:00 a.m. Regional staff held a conference call with Mr. Fox to review the facts and agreed at this time that a Boil Water Notice would be

prudent. At 11:00 a.m. Region III staff and Mr. Fox participated in another call to inform EPA Headquarters staff. The group decided that a significant risk to public health existed and agreed that a Boil Water Notice was warranted. Region III staff began drafting the notice while the appropriate management officials were briefed. At 11:30 a.m. the Acting Deputy Regional Administrator, William Wisniewski, gave his approval for this action.

Throughout the time of the above events I was in Washington D.C. on other matters. At 1:00 p.m. I contacted the regional office and was briefed on the impending notice. I personally contacted Jim Elder at EPA Headquarters, and Kim Fox for more information and then called the regional office back at 2:00 p.m. to OK issuance of the notice. Since I was to meet with the District of Columbia City Administrator Robert Mallet and other District of Columbia water officials on unrelated issues at 2:30, I decided to brief them at that time. Throughout the afternoon a host of regional employees and managers set out to refine the notice and make calls to officials, including state secretaries for the environmental and health agencies, State and county water officials and congressional officials. At this time arrangements for a press conference were made and EPA discussed coordination of the Notice release with the District of Columbia and the Corps.

By 4:30 p.m. we began faxing the draft Boil Water Notice to previously contacted officials, with the final Notice and corresponding press release completed and faxed thereafter. Shortly after 5:00 p.m. I announced the Notice at a televised press conference.

Throughout the evening staff from EPA, the Corps, the District of Columbia and Fairfax County assisted at an information center established by the Metropolitan Washington Council of Governments (MWCOG) to help respond to public questions and concerns. Over 15, 000 calls were received at the center.

On Thursday morning, I was joined in Washington by staff from the EPA's Region III Water Management Division and Public Affairs Office, who assisted with the information hot line, and kept the press and all officials apprised of the most current information.

On Friday afternoon and on Saturday morning we received test results from the Corp's contract laboratory concluding that the water samples that were collected on two consecutive days were free of *Giardia* and *Cryptosporidium*. This information fulfilled one of the three criteria for lifting the notice. The two other criteria were: no reported increase in the rate of waterborne diseases in hospitals/nursing homes, and that the Dalecarlia plant was being operated within EPA standards. After we were satisfied that these criteria were met, we lifted the Boil Water Notice at 1:15 p.m. on Saturday, December 11, 1993.

Actions to Prevent Future Incidents

We have already begun a number of efforts to reduce the likelihood of a repeat of this incident in the metropolitan region:

- * We are conducting weekly visits to the plant to review operations for the next several weeks.

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- * We began an independent investigation to determine what factors led to this incident.

- * We have advised the Corps concerning a scope of work for a Comprehensive Performance Evaluation to review staffing, training and overall operation of the plant.

- * We are reviewing, with the Corps, their procedures for notifying EPA (and EPA's internal coordination) in the event of further problems at the plant to assure that they are as efficient as possible.

- * We are also considering what additional monitoring may be needed to improve the decision-making process during emergencies.

In addition to our intensive work with the District of Columbia and the Corps to resolve the immediate problem at the Dalecarlia plant, EPA is working with Congress to make the Safe Drinking Water Act (SDWA) more effective at preventing similar problems.

The Administration submitted a detailed report on the status of the national drinking water program to Congress in September. Accompanying that report was a ten-point legislative agenda to reform the SDWA. The Administration wants to enact a multi-billion dollar Drinking Water Revolving Loan Fund to help water systems upgrade their drinking water plants to comply with SDWA. We want a stronger program for training and certifying the operators of drinking water treatment plants. We also believe the Act should do more to encourage pollution prevention. We need cleaner sources of water coming into our drinking water treatment plants. We look forward to continued close work with the Congress to better ensure the safety of the nation's drinking water.

I want to compliment the WMCOG, the District of Columbia and surrounding counties' officials, and my colleagues at EPA and the Corps, for an extraordinary job of teamwork during this crisis. It was a great pleasure to work with these fine public servants. Thank you.

I will answer any questions that you may have.

**STATEMENT OF ROBERT L. MALLETT
CITY ADMINISTRATOR AND DEPUTY MAYOR FOR OPERATIONS
GOVERNMENT OF THE DISTRICT OF COLUMBIA**

BEFORE THE

**COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT
HOUSE OF REPRESENTATIVES**

**MONDAY, December 20, 1993
9:30 a.m.**

Chairman Applegate, Congresswoman Norton and Members of the Subcommittee, thank you for the opportunity to discuss safe water supplies for the District of Columbia and the areas of the Metropolitan Region served by the Washington Aqueduct. Mayor Kelly has asked me to convey her appreciation for the leadership you are providing on this matter.

Attending this hearing with me this morning from the District are Dr. Mohammad N. Akhter, Commissioner of Public Health; Ed Scott, Administrator of the Water Sewer Utility Administration of the Department of Public Works; and Stephen E. Rickman, Director of the Office of Emergency Preparedness.

Since at least the early 1850's, when Lieutenant Montgomery C. Meigs of the Corps of Engineers studied the problems of Washington's water supply at the request of Congress, the provisions of potable water for the District of Columbia have been the responsibility of the Army Corps of Engineers. The Home Rule Act of 1973 saw no change to the historic relationship formally enacted in March 1859 when the Chief of Engineers was given superintendency over the Washington Aqueduct and, in fact, the Congress made explicit that the local government would not have any additional authority over...the Washington Aqueduct," the official name of the Corps' treatment facilities between the Potomac River inlet and the treatment plants. This relationship with the Corps has served us well.

After the Corps of Engineers treats Potomac River water, it is distributed in the District by the Department of Public Works through mains and pipes owned and maintained by the District. Billing and collection are done by DPW.

Appropriations for the operation of the Corps' water treatment are contained in the District's annual appropriations bills before the Congress. None of us can recall any recent times when the Corps' funding requests were the subject of any controversy or second guessing.

Two weeks ago, we experienced an emergency which called into question the availability of a fundamental resource necessary for human life--water. As such, it was a crisis that affected nearly each and every individual in the region and was a sobering reminder of our frailty and dependence upon one another and upon technology.

There was a significant time lapse between the detection of the problem by the U. S. Army Corps of Engineers and the notification to the U.S. Environment Protection Agency (EPA) and subsequently to the affected jurisdictions. I was notified by EPA on Wednesday, December 8 at 2:13 p.m.

Once notified, the affected local governments, officials of Region III of the Environmental Protection Agency, and U.S. Corps of Engineers worked quickly to create a forum and process to inform the public of the water emergency.

These issues need to be addressed by all involved parties so that the public can be assured that all appropriate steps are being taken to insure a safe water supply for area residents.

The Chronology and Actions Taken by the District

The chronology of the water emergency is as follows:

- o At 2:30 p.m. on Wednesday, December 8, 1993, a meeting with the Acting Regional Administrator of EPA, Region III, in my office, originally scheduled to focus on another issue, was devoted to EPA's announced intention to issue a Boil Water Notice for the areas of the region served by the Washington Aqueduct. The notice was to be issued later that afternoon. It was being issued because of high levels of turbidity detected in the water at the Dalecarlia Treatment Plant operated by the Corps. In addition to most areas of the District of Columbia, the affected areas were to include parts of Fairfax County and Arlington County, Virginia. The next day, a section of Suitland, Maryland, encompassing about 100 homes, was added to the area affected by the alert.
- o District officials in concert with the suburban neighbors immediately implemented an emergency response procedure as follows:
 - * refined the impending Boil Water announcement that later finalized by EPA;
 - * the District's Office of Emergency Preparedness Executive Command and Communications Center made preliminary notifications to area supermarkets, the D.C. Public Schools, Departments of Recreation, Human Services and Corrections, hotel and restaurant associations, and the D.C. Public Health Commissioner, who, under established procedures, alerted the area hospitals;

- * Arrangements were made by EPA and District officials to hold a press conference to inform the public of the water emergency;
- * the District's Public Health Commissioner notified area hospitals of the impending Notice; contacted health officials in the City of Milwaukee and the Centers for Disease Control regarding the treatment of disease induced by cryptosporidium and supplied information to area hospitals; developed and implemented a protocol for notification the Commission of Public Health by each hospital of any illnesses which might be related to water contamination; and scheduled a meeting of the regional public health officials for Thursday afternoon;
- * District officials made provisions to translate the Boil Water Notice into Spanish, Korean, Chinese and Vietnamese. Arrangements were made by the Mayor's Office of Communications through private organizations, Deaf Pride, Washington Ear, and Columbia Lighthouse for the Blind, to have the Notice made available for hearing and visually impaired;
- * the Washington Metropolitan Area Council of Governments (COG) was contacted and readily agreed to serve as a regional command center for the emergency. By 10 p.m., with the assistance of C&P Telephone Company, an information hotline was fully functional;
- * the Superintendent of D.C. Public Schools used electronic mail to notify all schools of the water Notice and request that building engineers shut-off water. According to the D.C. Public Schools, an existing water services contract was activated to deliver supplies by 9:30 a.m. on Thursday morning, December 9, and all 165 schools were supplied with water;

- * the D.C. National Guard, in conjunction with the Capitol Heights Fire Department, supplied fresh water to the 3,500 residents of the D.C. Jail, correctional treatment facility, halfway houses the Receiving Home, and D.C. Village; the D.C. National Guard also developed arrangements with other area Guard units to supply additional water in the event that it became necessary during this emergency;
- * the D.C. Office on Aging provided bottled water to the homebound through the Meals on Wheels Program, and to the city's senior centers;
- * the District Government coordinated water supplies for the homeless from a private donation dispensed from two tractor trailer trucks, parked at 16th & Constitution Avenue, N.W., and loaded with bottled water
- * the D.C. Department of Recreation and Parks issued precautions to staff at recreation centers to prevent young people coming to the centers from drinking the water. Beverages were delivered to the centers, and 114 water fountains were subsequently turned off or disconnected; and
- * the Department of Public Works, as the water distributor, implemented a flushing program for the dead ends of the system.

Post Emergency Response

In addition to the above-referenced measures undertaken during the emergency, District agencies have taken the following additional actions to review water emergency preparations:

- o after-action debriefings of all District agency participants in the water emergency have been held at the Office of Emergency Preparedness and the preparation of an after-action report is underway;

- o agencies have been solicited for recommendations on how the management of the incident could have been improved and what changes in existing plans and procedures might be needed;
- o we have requested that the Council of Governments review and update the "Metropolitan Washington Water Supply Emergency Agreement," signed by area governments in 1979, and all other regional plans and agreements which may be relevant, to include specific notification procedures for water contamination emergencies and standard operating procedures for regional command centers and emergency public information;
- o we are expanding Annex K "Water Supply Failure" of the District's Emergency Operations Plan, which primarily addresses the issue of water shortage, to delineate and clarify notification and public information roles and responsibilities for the EPA, Corps and city agencies in an emergency involving contamination;
- o we have developed a *Preliminary* Notification List for advance alert of an impending Federal order, or other action affecting the District's water supply, to assure that schools and public agencies, hotels, restaurants and other public accommodations receive the most timely warning;

Federal Monitoring and Notifications Procedures

We also are concerned about the design of the program for ongoing monitoring of the water at the Dalecarlia Treatment Plant and have suggested that any protocol for monitoring link specific water test readings to the collection of clinical public health data.

Specifically, we are concerned about the emerging threat of certain bacteria contaminants in our Nation's water supply. The potential for contamination requires us to scrutinize our water

purification and filtration procedures to ensure that they are capable of addressing these emerging threats to our water supply.

Further, we want to be apprised of EPA's long-term oversight plan for Dalecarlia, including its determination of what upgrades might be required to ensure water safety.

The District supports all investigative actions that are now underway. We want to know precisely what caused this calamity, when it began, was there an inordinate delay in notifying the affected jurisdictions, and what measures are now in place to ensure that this does not happen again.

The city also seeks greater clarity on the emergency notification procedures and policies used by the EPA and Corps for conveying information to alert public officials and the general public. This is an area of concern to us because the lack of coordination and preplanning can lead to delays in notification, with a resultant risk to public health and safety. Further delay, unevenness and intermittent release of information can undermine the most rehearsed emergency response plan and needlessly panic the public. Guidelines for notification and emergency public information should be developed and widely disseminated, as there is a critical need to control the flow of emergency information to avert rumor and public panic during an emergency.

According to the regional water supply emergency plan developed in 1978, it is the responsibility of the Washington Aqueduct Division of the U.S. Army Corps of Engineers, as the water supplier, supply, to notify other water suppliers and distributors and local governments in the affected jurisdictions.

Madame Chair and Members of the Subcommittee, in spite of these problems, we worked as a team and served the public well. However, it is imperative that the EPA, Corps, and local jurisdictions have updated concrete plans and strategies in place to respond to any future water emergencies.

Again, thank you for this opportunity. I would be pleased to answer any questions that you might have at this time.

**TESTIMONY OF
ERIK D. OLSON
SENIOR ATTORNEY
NATURAL RESOURCES DEFENSE COUNCIL**

**BEFORE THE WATER RESOURCES
AND ENVIRONMENT SUBCOMMITTEE
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION**

UNITED STATES HOUSE OF REPRESENTATIVES

DECEMBER 20, 1993

I am Erik D. Olson, a Senior Attorney here in Washington, D.C. for the Natural Resources Defense Council (NRDC), a national private, non-profit public interest organization dedicated to the protection of public health and the environment, with over 170,000 members nationwide. We appreciate the opportunity to testify before the Subcommittee this morning.

Across the Washington, D.C. metropolitan area, the Capital of the most advanced industrialized nation in the world, nearly a million people recently spent several days boiling or buying bottled drinking water. Our confidence in the safety of our tap water--which most of us have taken for granted--has been shaken. And well it should be.

Although some officials may hope that the public's memory is short, and that we will forget about the recent events quickly, allowing a return to business as usual, we cannot let that happen. At least for a while, EPA should take over water testing at the water plant. In addition, as discussed in more detail below, EPA should oversee a detailed audit of the water system's equipment and operations, and of upstream pollution threats to our water supply. Ultimately, it is clear that the water treatment system in Washington must be upgraded, and that action must be taken to better protect the Potomac from pollution.

Efforts to portray the recent events as the result of a rare failure of a few low-level Corps of Engineers employees is scape-goating at best, and extremely misleading. Last week's events offer only a small glimpse of a much larger problem with drinking water not only in Washington, but across the nation. They begin to lay bare some of the

deeper, more fundamental problems with Washington's and the country's increasingly threatened, outdated, and crumbling system for provision of drinking water.

For example, NRDC recently released a report entitled Think Before You Drink (attached to our testimony), based on EPA data, which documented that in 1991-1992, over 28 million Americans drank water more contaminated than EPA health standards allow. In addition, over 100 million people drank water from systems that violated EPA water safety monitoring, reporting, and treatment technique rules, often likely masking waterborne health threats. Over 90 percent of the monitoring and reporting violations were deemed "major" by EPA—such as an outright failure to test water to assure its safety for the entire compliance period. The D.C. water system is an illustration. For example:

- o In September, and during much of the Summer and Fall, total coliform bacteria (an indication of possible fecal matter contamination) have been found in tap water at many locations across Washington. This led EPA in September to issue an emergency order which found an imminent health threat, and which required many residents in Northeast Washington to boil their water.
- o Total coliform bacteria also are frequently found where they should not be—in the holding tanks and basins immediately downstream from the Corps of Engineers' filtration and disinfection plant—for reasons that remain a mystery. It is possible that the plant's outdated design, which takes the backwash with gunk accumulated on its filters, and, without adequate treatment, pumps it back into the water reservoir for reuse, contributes to the problem.

- o Several weeks ago, due to bacterial contamination found in the drinking water at the Corps' treatment plant, notices were posted at the treatment plant informing workers there that the water could not be consumed. Yet apparently the general public was not notified that its water was threatened, supposedly because the plant uses different water than the rest of the city.
- o Monitoring data for D.C., recently obtained by NRDC, indicate that during many months over the past few years, the water supply has contained turbidity--the cloudiness that caused the recent uproar--at levels averaging well above the EPA standard of 0.5 units. This occurred without public notice or fanfare.
- o Just before the boil water notice was issued earlier this month, D.C. issued a little-noticed announcement that 25 percent of the taps tested in the city contained lead at levels above the EPA "action level," due to lead leaching from pipes.
- o Monitoring data also indicate that Washington's water supply often contains high levels of trihalomethanes. These organic chemicals are created when water is chlorinated, have been found in at least nine human epidemiological studies to be associated with cancer, and recently were found by U.S. Public Health Service and other doctors to have possible links to certain birth defects. During the summer, these levels often exceed EPA's 100 part per billion standard, but apparently technically do not violate the outdated current rules because they can be averaged with lower levels during other times of the year. To reduce the levels of these chemicals would require important improvements in watershed protection and

probably the installation of granular activated carbon or other modern treatment--as Fairfax County has recently done.

Clearly, stronger local efforts to modernize water treatment in D.C. are needed. In addition, nationally, the Safe Drinking Water Act must be beefed up to toughen health standards, improve EPA enforcement, and fund water supply improvements. The Clinton Administration's proposals on this score, while still needing some improvement, would take several positive steps in this direction. Water industry and local officials' efforts to enfeeble drinking water protections because they are said to cost too much--such as the Slattery-Bliley bill (H.R. 3392), which would gut drinking water standards and reduce requirements for notice to the public and media of violations--must be rejected.

We also must better protect our source waters, like the Potomac River, from pollution in the first place by adopting strong watershed protections, such as those proposed by Rep. Oberstar (D-MN) in H.R. 2543, and improving industrial and sewage treatment controls in the Clean Water Act. For example, if the watershed in Milwaukee had been better protected from cattle and human waste, and had installed and properly operated state-of-the-art water treatment, 400,000 people there would not have fallen ill from water contamination. We also understand that Congresswoman Eleanor Holmes Norton intends to introduce the Urban Watershed Restoration Act in early 1994, as an amendment to the Clean Water Act. This very positive legislation gives community groups and local governments additional resources to restore and revegetate stream

channels, reduce runoff, and take other action to protect long-neglected urban watersheds like the Potomac and Anacostia Rivers.

Many of the nation's water systems, like D.C. and Milwaukee, are walking on a razor's edge. The traditional "multiple barriers" to drinking water contamination--protection of watersheds or source waters from pollution, and water treatment using coagulation and sedimentation of solid matter, filtration of microorganisms if watershed protection is inadequate, and finally chemical disinfection--are often lacking, or are threatened by under-investment and weak or non-existent source water pollution controls.

We should not have to face more water scares, disease outbreaks, or chemical contamination incidents before the public demands action by Congress and local officials. Let us hope that Washington does not become famous for repeated notices greeting visitors with the kind of notice often associated with developing countries: "Welcome to the Nation's Capital. Please Do Not Drink the Water Until Further Notice."

**THE NEED FOR DETAILED INVESTIGATIONS AND ACTIONS TO PROTECT
THE WASHINGTON METROPOLITAN AREA'S DRINKING WATER SUPPLY**

In order to assure that the local water supply is protected and to get to the bottom of the past and current problems with our drinking water, Congress should demand the following actions:

1. A full, independent engineering and comprehensive performance evaluation of the McMillan and Dalecarlia water treatment plants, to be paid for by the Corps of Engineers, but conducted by a qualified independent contractor, overseen by USEPA. This investigation should determine past and current performance of the plants, and should evaluate in particular the practice of recycling filter backwash, and why it appears that total coliform and other contaminants are being found in the finished water. It also should evaluate whether it is true that the water at the treatment plant is somehow separate and distinct from the water served to the public, as has been stated by the Corps. On October 5, 1993, in an emergency order, EPA ordered the Corps to have a qualified independent contractor perform a comprehensive performance evaluation within 45 days of the order.
2. A complete audit by EPA of all past records for the plants, and interviews of current and past plant personnel, to determine whether there have been past violations of any maximum contaminant levels, treatment techniques, monitoring, reporting, public notice, or other regulatory requirements under the Safe Drinking Water Act, or under other public health and environmental laws, and whether there have been previous problems with treatment.

3. Initiation of additional comprehensive microbiological monitoring overseen by EPA of the plants and distribution system, including but not limited to their raw water, filter influent, filter media, backwash water and solids, individual filter effluents immediately after backwash, combined filter effluent, first clearwell effluent, and water at representative points in the distribution system. This should include more routine and repeat evaluations at appropriate locations both pre- and post filtration, for turbidity, coliform, cryptosporidium, giardia, legionella, viruses, and other appropriate microorganisms.

4. A detailed evaluation by an independent contractor, overseen by EPA, of possible cross connection, regrowth, and other distribution system problems, including the development and implementation of a routine flushing program for D.C.'s distribution system.

5. A comprehensive engineering evaluation of the future needs of the two water treatment plants to assure long-term water quality, and compliance with likely increasingly stringent EPA rules for surface water treatment and disinfection by-products. This should include pilot studies for granular activated carbon, ozone, and other treatment technologies that may be necessary to comply with future microbiology, disinfection by-products, and other chemical contaminant rules, and to fully protect public health.

6. EPA should complete a full review and evaluation of upstream discharges, runoff problems, and other potential threats to the source water used by the plants (the Potomac watershed). A report should be required on such threats, and a watershed

protection plan should be developed. This plan needs to include mandatory enforceable runoff controls, in the form of site-level water quality plans for all land uses that pollute the Potomac River and Dalecarlia Reservoir. The Oberstar Proposal--H.R. 2543--would require these necessary controls.

7. In cooperation with the D.C government and other jurisdictions served water by the Corps' treatment plants, and with public input, EPA and the Centers for Disease Control and Prevention should design and implement an active waterborne disease monitoring program in these areas to determine whether waterborne disease is occurring. This should include active surveillance of the AIDS and other immunocompromised populations. An epidemiological study of waterborne disease in these areas should be completed, to follow-up on the Payment study which found that as much as 30 percent of intestinal illnesses in a population served by a well-run filtration plant still may be attributed to water. This program could serve as a model for use across the nation and would assist policymakers in deciding what further action is needed to protect the water supply in D.C and in many other communities across the country.

Without these detailed evaluations, we will be heading into the future without a road map, destined to repeat our problems of the past.



ADDITIONS TO THE RECORD

Brian M. O'Connor, Mayor
 Phillip J. Thomas, Vice Mayor
 Dale W. Dover
 M. C. "Merni" Fitzgerald
 E. D. "David" Minton
 Robert R. Perry
 Jeffrey J. Tarbert

City of Falls Church

Harry E. Wells Building
 300 Park Avenue
 Falls Church, Virginia 22046-3301

Elizabeth Shawen, City Clerk
 703-241-5014
 Fax 703-241-5158

December 20, 1993

The Honorable Eleanor Holmes Norton
 1415 Longworth House Office Building
 Washington, D.C. 20515

ATTN: Alma Henderson

Re: Water Quality Hearing

Dear Mrs. Norton:

My office was contacted by your able staff on Friday, and advised a hearing was scheduled for 9:30 a.m. today, before the Water Resources and Environment Subcommittee. I notified your staff I was willing to appear and very appreciative of your kind invitation, but could not rearrange my schedule and appear with a prepared statement this morning.

I trust the attached statement in lieu of an appearance will be of assistance to the Committee's work. I hope the hearings will be productive and benefit the entire Metropolitan area.

Three issues I raise in my statement are:

- 1) The failure of adequate notification;
- 2) The need for capital improvements at the Dalecarlia facility;
- 3) The need for adequate investigation of the recent water crisis.

The Honorable Eleanor Holmes Norton
December 20, 1993
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If I can assist you further, please let me know.

Respectfully yours,

A handwritten signature in dark ink, appearing to be "Brian M. O'Connor", with a large, sweeping underline that extends to the left and right.

Brian M. O'Connor

:et

Enclosure

cc: D. Lasso, City Manager
B. Gordon, PIO
Son Nguyen, Acting Director Public Utilities

**STATEMENT OF BRIAN O'CONNOR
MAYOR OF FALLS CHURCH, VIRGINIA
DECEMBER 20, 1993**

Falls Church City provides water to a population of over 120,000 people, approximately 29,500 homes. The area served covers 33 square miles comprised of Falls Church City and portions of Fairfax County, including McLean, Tyson's Corner and the Town of Vienna. Fairfax Hospital, among other medical facilities, are within the area served by the City. The Falls Church City water system has a capacity of 30 million gallons per day. The average water usage per day is approximately 17 million gallons.

The customers of the City's Water Authority have come to expect not only excellent, responsive service, but also a safe, clean product. Indeed, our customers take for granted that when they turn on the tap they will have safe water to drink.

Their faith has been shaken since the "boil water" scare of December 1993.

The Falls Church Water Authority purchases all of its water from the Dalecarlia facility operated by the Army Corps of Engineers. The water is treated and filtered by the Corps of Engineers, not by the City. Therefore, the City is dependent on the Dalecarlia plant for the quality of the water the City distributes to our customers.

The City was not notified of excessive turbidity, or any water quality problem, by the Corps of Engineers or EPA. City staff received their first inkling of trouble from news reports on December 8. The City's Acting Head of Public Utilities called the Dalecarlia plant manager by phone that afternoon and was told that samples of treated water showed excessive turbidity of 2.0 Nephelometric Turbidity Units (NTU). The standard for acceptable turbidity is 1.0 NTU. He was also advised that the water was not contaminated. No mention was made of any requirement to boil the water, nor of any concern about cryptosporidium. The City passed this information onto the County of Fairfax which was being contacted by customers both in and out of the City water service area as reports of a potential water problem were being broadcast on radio. The Town of Vienna (a customer of Falls Church) was given the same information available to the City. The D.C. Health Department officials advised they were notified shortly after 4:00 p.m. and shortly thereafter the D.C. Health Commissioner made a televised statement recommending that water be boiled for one minute. The notice to boil water at all was contrary to the original information received by me, which indicated there was no contamination suspected. The City sought clarification and was advised the EPA did not rule out contamination. The City, in accordance with recommendations from the Virginia Department of Health,

advised its customers to boil water for 10 minutes for cooking and drinking.

There were later reports that turbidity had been found, but not reported, for approximately 24 hours. The State of Virginia and local jurisdictions have established procedures for dealing with emergency situations, including communication with the press and public. The quick response of the City of Falls Church and of the Council of Governments in setting up phone banks to respond to inquiries is an example. It is my impression that neither EPA nor the Army Corps of Engineers had an established procedure for dealing with a situation of this kind, or for conveying accurate and timely information to local governments affected and their citizens. This should be remedied. For a crucial period, 120,000 customers and our City staff, were dependent on the media for information. That information was conflicting. The failure of the Corps or EPA to notify us as a major water purchaser was wrong. It should not be repeated.

The Army Corps of Engineers has planned certain capital improvements to the Dalecarlia facility, which is aging. In the past, the Corps of Engineers has borrowed money using District of Columbia bonding authority. By that means, interest rates have been favorable and payments for capital improvements have been spread out over a period of years. The Corps of Engineers can no longer utilize D.C. bonding authority and has no other funding mechanism available to it. Accordingly, the Corps proposes that the jurisdictions it serves ante up the necessary funds for its capital improvement program on a pay as we go basis. Assistance from the Congress is required so that the Corps of Engineers will have the capacity to borrow for these needed improvements. Determination must also be made as to whether the planned capital improvements at the Dalecarlia facility are appropriate and adequate to deal with the threat of the cryptosporidium organism which is not killed by the chlorine treatment typically utilized.

The City of Falls Church hopes the Subcommittee's efforts will assist the Corps of Engineers in investigating and identifying the causes of the excessive turbidity found in its treated water. Effective oversight of the corrective actions proposed is essential so that the public will be assured that such incidents will not be repeated. Investigation by the Subcommittee of the procedures for notifying the public in the event of a water emergency, with specific recommendations for improvements in such procedures, would be highly beneficial to the public. The Corps of Engineers should be called upon to explain how their plans for upgrading the Dalecarlia facility will preserve water quality and how the Corps expects to fund those improvements.

If there is further information which I can provide, please let me know, and we will respond promptly.

Brian M. O'Connor
Mayor, City of Falls Church

INTERSTATE COMMISSION ON THE POTOMAC RIVER BASIN

Suite 300
6110 Executive Boulevard
Rockville, Md. 20852-3903
(301) 984-1908
FAX (301) 984-5841



February 7, 1994

The Honorable Douglas Applegate, Chairman
Subcommittee on Water Resources and the Environment
Public Works and Transportation Committee
U. S. House of Representatives
Rayburn House Office Building
Washington, D.C. 20515-6262

Dear Mr. Chairman:

I am writing with respect to the December 20, 1993, testimony of Ms. Ruth R. Crone, Executive Director of the Metropolitan Washington Council of Governments (COG), before your Subcommittee. I request that this letter be made part of the record of the December 20th hearing.

Ms. Crone testified before your Subcommittee regarding the December 8, 1993 drinking water supply incident at the Dalecarlia Water Treatment Plant and the ensuing response. After describing the incident, Ms. Crone made an assessment of the ability of existing local agreements to address such incidents now and in the future, and concluding they were not adequate, she proposed recommendations for further action. Ms. Crone stated that the existing regional water supply agreements are outdated and may no longer be relevant to current and future regional water needs. Based on the suggested inadequacy of these agreements, Ms. Crone stated the need to update the region's water supply coordination and response and that COG had initiated a review and assessment of these agreements in order to identify the changes necessary to update and strengthen regional water supply agreements and plans.

After reviewing the testimony, both COG and the ICPRB were concerned that the blanket criticism of all regional agreements was unfortunate and, in fact, incorrect since several of these agreements and the programs and activities supporting them have functioned extremely well over the years and did not need change. Ms. Crone agreed with our concerns and very graciously offered to clarify her testimony to your Subcommittee. By letter dated January 31, 1994, to Congresswoman Eleanor Holmes Norton, Ms. Crone identified several of these agreements. The Commission believes additional information on these agreements and related programs administered under the auspices of the ICPRB would contribute to your Subcommittee's understanding of the water supply situation in the Washington metropolitan area (WMA).

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To <i>For: Stambler</i>	From <i>Barbara Barnett</i>	
Co	Co.	
Dept	Phone # <i>301-984-1708</i>	
Fax # <i>202-225-4627</i>	Fax #	

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February 4, 1994
Page 2

ICPRB was created with the Potomac Basin Conservancy Compact of 1940 by the signatories -- the Commonwealth of Virginia and Pennsylvania, the States of Maryland and West Virginia, and the District of Columbia. The 1940 Compact was developed for the purpose of controlling pollution in the Potomac drainage area and the U.S. Congress approved it on July 11, 1940. The federal government is represented on the Commission along with the signatories. Amendments to broaden the Commission's coordination, investigation, and education responsibilities to include "development, utilization, and conservation of the water and associated land resources of the basin" were approved by Congress (PL 91-407) on September 15, 1970.

In addition to other functions, the Compact allows the creation of "Sections" to address a specific subject area of concern to more than one but less than the total number of signatories. In this context, Maryland, Virginia, West Virginia and the District of Columbia agreed to create the Section for Cooperative Water Supply Operations on the Potomac (CO-OP) to provide a cooperative regional approach to the operation and management of the Washington metropolitan water supply. An Operations Committee comprised of representatives from the three Metropolitan D.C. utilities oversees the functions of this unit in coordinating the joint operation and management of the region's water supply. CO-OP has over 15 years of experience in water supply planning and coordinating activity. It has made valuable contributions in this regard, including the following:

1. ICPRB worked with the state and federal governments and the region's water supply utilities to demonstrate that the WMA water supply needs could be reliably satisfied through joint, cooperative operation. This result eliminated the need to construct 15 major reservoirs, recommended by the U.S. Army Corps of Engineers in 1963, saving the federal government and the region substantial construction costs (initially estimated at \$350 million).
2. The CO-OP section continues to coordinate regional water supply planning, including long-term forecasting of future water use, sizing and expansion of treatment and distribution systems, coordinated support for the administration of consumptive water use from the Potomac River, and the analysis of new sources of water supply for the WMA.
3. The CO-OP section maintains the region's drought preparedness by conducting a drought simulation exercise each summer. In addition, the region's susceptibility to drought is regularly evaluated and reported in a series of water supply outlooks prepared by the CO-OP section throughout the spring, summer and fall.
4. During periods of low flow in the Potomac, CO-OP coordinates the operation of the three water supply utilities in the WMA. CO-OP allocates river flow and

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schedules reservoir releases in order to assure the reliability of the region's water supply, while maintaining instream flow for aquatic habitat.

One of the agreements mentioned in Ms. Crone's testimony and again in her January 31, 1994 letter is the Potomac River Low Flow Allocation Agreement (LFAA) which was signed in 1978. The LFAA (governing party signatories are the U.S. Government, Maryland, Virginia and District of Columbia) assures cooperative and equitable allocation of the Potomac River water supply during droughts. While the LFAA is referred to in the 1979 Water Supply Emergency Agreement established by the Council of Governments, the LFAA was created a year earlier and functions totally independent of that Agreement. More important, the LFAA remains a successful and fully functional agreement that continues to play a crucial and timely role in the region's current and future water supply planning and operation.

The 1982 Water Supply Coordination Agreement (WSCA) is a second important regional agreement that unfortunately was not referenced in the testimony but was discussed in the January 31, 1994, letter. Participants in this agreement are the Corps of Engineers representing the federal government, the District of Columbia, the Fairfax County Water Authority, the Washington Suburban Sanitary Commission and the CO-OP Section of ICPRB. This independent agreement commits the regional water suppliers to joint cooperative operation in order to maximize the reliability of the region's water supply. It also provides the mechanism for implementing restrictions and conservation measures during shortages. Further, WSCA prescribes the planning and technical support functions of CO-OP carried out under the direction of the CO-OP Operations Committee.

Under WSCA, CO-OP members regularly conduct a proactive assessment of projected demands and the available resources to anticipate the region's future water supply needs. The most recent review has resulted in an ongoing partnership between CO-OP, private sector interests, county and state government, and the U. S. Army Corps of Engineers to study the feasibility of reallocating storage in Jennings Randolph Reservoir for water supply purposes. Furthermore, long before the December 8th treatment problem at the Dalecarlia plant, the CO-OP Operations Committee had directed and approved a review of the region's water supply contingency plans. This review is currently underway and will significantly contribute to the reexamination of regional water supply emergency plans that have been initiated by the local governments. In addition, CO-OP maintains and operates a spill model for the Potomac and its major tributaries, and continues to actively work with the basin jurisdictions in improving their spill response plans.

The Sugarland Run pipeline spill demonstrates the viability of existing water supply agreements. In this case, the region's water supply was threatened in March of 1993 by a spill of over 400,000 gallons of diesel fuel to the Sugarland Run tributary of the Potomac

The Hon. Douglas Applegate
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River, shutting down the Fairfax County Water Authority's Potomac River Treatment Plant for 11 consecutive days. As disruptive as this event was, it pointed out the far greater threat posed by an accident of this type. If the pipeline break had occurred in another location, during low flow conditions, the effects of such a spill could have threatened not only the potable water supply, but also the sanitary needs and fire protection for the Nation's capital.

The Commission, through its CO-OP Section, has responded to this threat by undertaking joint cooperative efforts to support the targeting of federal regulatory efforts to identify appropriate risk reduction measures for hazardous liquid pipelines. The Commission is a member of a recently formed joint government-industry quality team charged with identifying performance-based risk reduction activities for the pipeline industry. This innovative, team-building approach directed toward developing effective recommendations for industry is sponsored by both the Federal Office of Pipeline Safety (OPS) and the Chevron Pipeline Company, with participation from three pipeline companies, the Texas Land Commission, The American Petroleum Institute, and The Interstate Commission on the Potomac River Basin.

Recognizing the lack of consensus on technical engineering-based criteria for evaluating the risk of hazardous liquid pipeline design, operation, inspection and management, the Commission is acting to convene an independent committee of experts through the National Research Council to provide comprehensive review and analytical criteria for use by OPS in risk based rule making. This effort, supported by OPS and The American Water Works Association, would contribute to the technical basis for the pipeline regulation currently under development by OPS, that will direct the pipeline industry into the 21st century.

The testimony also noted a number of changes to water supply operations in the WMA during the past 14 years. These changes are a further clear and tangible demonstration of the success the Low Flow Allocation Agreement, the Water Supply Coordination Agreement and the CO-OP section in coordinating regional planning and operation to assure an adequate water supply for the WMA. The changes flowed from these arrangements and did not make them obsolete. In fact, these agreements successfully address both current and future water supply problems in this region and have been cited as a national model for regional, cooperative water resource management.

The success of CO-OP in guiding metropolitan water supply functions under these agreements, as demonstrated by the activities described above, clearly refutes the conclusion that all water supply agreements are outdated and no longer relevant to current and future activity and planning. At the same time, the Commission agrees with the need to update emergency notification plans and communication procedures, and we support efforts in this regard. This need was clearly demonstrated by the Dalecarlia incident. The breakdown of the filtration process at the plant stemming from problems with its operation has highlighted

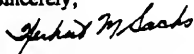
The Hon. Douglas Applegate
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the need for operational changes, many of which are currently being implemented by the Corps of Engineers. Equally important, the incident also revealed a breakdown in the region's plan for emergency notification and coordinated communication among public officials and agencies and indicated the need for revising and improving these procedures to increase their efficiency and shorten their implementation time so as to prevent even more serious breakdowns in the future.

In summary, the ICPRB, federal agencies, states, counties, utilities and private sector interests are active partners in regional cooperative activities undertaken to assure a reliable water supply for the WMA. The agreements and programs supporting this activity that are working well should be acknowledged so that attention can be focused on the outstanding problems that have been identified.

I hope this correspondence provides your Subcommittee with a better understanding of both the water supply situation in the metropolitan area and the comprehensiveness of programs and activity addressing this very complex subject. I will be pleased to provide additional information at your request. Thank you for the opportunity to provide these comments.

Sincerely,



Herbert M. Sachs
Executive Director

cc: The Hon. Eleanor Holmes Norton
Member, U.S. House of Representatives
Ms. Ruth Crone, COG



CLEAN WATER ACTION

TESTIMONY OF CLEAN WATER ACTION
BEFORE THE
HOUSE WATER RESOURCES AND ENVIRONMENT SUBCOMMITTEE

REGARDING
THE D.C. WATER CRISIS
AND ITS RELATION TO THE UPCOMING
SAFE DRINKING WATER ACT AND
CLEAN WATER ACT REAUTHORIZATION

December 20, 1993

Prepared by
Paul D. Schwartz
National Spokesperson



I. INTRODUCTION

Members of the Committee. My name is Paul D. Schwartz. I am a spokesperson for Clean Water Action, a national environmental organization with over 1,000,000 members nationwide and offices in 15 states. Over 60,000 of our members live in the area that was affected by the recent drinking water crisis.

Thank you for the opportunity to submit testimony today on the critical issue of the drinking water crisis, involving the District and portions of neighboring Virginia and Maryland, that the committee will address both today, and later in a much broader way as it considers amendments to the Clean Water Act (CWA) and Safe Drinking Water Act (SDWA).

Concern for the safety of drinking water is not limited to communities like Milwaukee, New York, and Washington, D.C., whose drinking water systems have experienced a crisis in public confidence this year, but to a vast body of citizens who recognize the inability of their water treatment and delivery systems to provide safe water. According to the GAO, a alarming array of heavy metals, toxic chemicals and bacteria, have shown up in one form or another in upwards of one-third of the nation's drinking water systems over a five year period between 1986 and 1991.

The question is, how do we stop this slide towards a "third-world" like drinking water paradigm? And, as stated so eloquently by Congresswoman Norton, "When the capital of the most advanced scientific nation in the world has water supply problems, and a million people are affected, we need to investigate the causes and seek permanent remedies." Clean Water Action believes that without increased funding, standards setting, enforcement, and utilization of the best available technology, more and more of our citizens will be drinking unhealthy water.

II. THE GREATER WASHINGTON WATER EMERGENCY

It is past time to modernize our water treatment systems. Now that EPA has declared that the drinking water crisis in our nation's capitol is over, it is time to protect our future. The genuine solution is to modernize our water treatment systems so that they are fully capable of preventing future disruption and the kind of catastrophe that happened in Milwaukee this year.

In Milwaukee the rains carried not only mud, but cryptosporidium that brought serious and often prolonged bouts of diarrhea and vomiting to 400,000 residents. About 40 people lost their lives. If a few improvements and safeguards had been in place, the tragic loss of life in Milwaukee could have been prevented.

It is a relief that the cryptosporidium did not strike the nation's capitol. There is, however, little ground for comfort or confidence. The water emergency was both disruptive and expensive. While many people switched to bottled water and took the emergency in stride, there was justifiable alarm for young children, the aged and for patients with immune deficiencies (including AIDS), cancer and other serious illness. Diarrhea can be fatal to such people.

Until real changes are made, the water supply of Washington, and many other cities will remain vulnerable. Rain washes not only soil but every imaginable kind of urban waste into rivers and reservoirs. Cryptosporidium (found in animal wastes) is frequently found in **untreated** water. Although most disease-producing bugs are killed by chlorination, several including cryptosporidium are not. Thus a breach in a system's removal systems (filtration and settling) can lead to serious problems. In addition to events in Washington and Milwaukee, there have been 34 outbreaks of waterborne disease in the past few years according to the US Centers for Disease Control. Cryptosporidium was the culprit in about six of these outbreaks (Washington Post, Dec. 9, 1993). Water testing at several Washington locations detected high fecal coliform bacteria -- the type found in human waste.

Even as the Army Corps of Engineers (which operates the Dalecarlia Treatment Plant) is conducting its own investigation under EPA supervision, an independent audit investigation, as called for by the Natural Resources Defense Council (NRDC) is essential to look at the full range of problems with Washington's treatment system. This hearing too, is a necessary step in determining both the dangers and opportunities presented by this scare.

Congress, EPA, and the White House must go beyond the human error factor. Yes, operators at the Dalecarlia plant may have failed to respond quickly enough to the escalating cloudiness of the incoming water; they may have waited too long to add more aluminum sulfate, a chemical that facilitates particle removal. The problem may have been noticed on Sunday -- one day earlier than admitted to by the Corps. Clear training and guidelines may not have been available for the line operators. Increased training, vigilance and water sampling are all necessary.

However, these steps alone will not suffice. Human error has a way of sneaking in. There is no substitute for a water treatment system that is fully functional and that has the capacity and design against unexpected and infrequent events that can lead to costly and tragic disasters. A million people depend on the treatment system in Washington.

What combination of measures is needed to safeguard drinking water in Washington and other places? The best fix or combination of measures may vary from city to city. Here are some of the measures that might be part of a prevention-based plan.

- * **Adequate capacity:** the absence of the McMillian treatment plant -- currently closed for repairs -- may have contributed to an overwhelming of the Dalecarlia system. It is critical that sufficient filter capacity be available at all times.
- * **More frequent cleaning (backwashing) of filter beds** may also help to ensure that the filters do their job during periods of high turbidity.
- * **Proper treatment and disposal of the water used to backwash filters:** the Dalecarlia plant disposes the backwash water -- containing filtered pathogens -- back into reservoirs. This practice was eliminated in Milwaukee following the cryptosporidium outbreak and should be discontinued in Washington. Extra settling tanks will be necessary.
- * **Technology:** Forty US cities have recently added ozone treatment systems. Ozone is effective in killing cryptosporidium and other chlorine-resistant pathogens. According to the Post (Dec. 10, 1993, A-39), both Washington and Milwaukee are considering ozone. In addition, using filterbeds made of activated carbon may increase efficiency of particle capture and may include added benefit -- removal of many toxic pesticides and other chemicals from public water.

Given that the Washington area is a cancer cluster of staggering proportions, and that multimedia effects of omnipresent carcinogens are not well understood, it is time to take decisive action and eliminate one of those many threats to our public health and community welfare. The time for consideration is over. Yes, modernizing our water facilities and curbing non-point source pollution will cost many millions of dollars. Certainly, the debate over budget priorities on both the local and national level will be difficult. No doubt, the upcoming Clean Water Act and Safe Drinking Water Act will seek to place cost, profit and inertia over health and long term economic security.

However, consider the costs of inaction -- disasters waiting to happen, dwindling public confidence, and the erosion of a most fundamental part of our social and economic infrastructure, safe and dependable drinking water. Making the investment will not only protect public health but can provide economic benefits as well: avoided costs, jobs and a message to the increasingly

competitive world that the United States of America is a technological leader worth following.

III. SAFE DRINKING WATER ACT & CLEAN WATER ACT REAUTHORIZATION

The fact that the Washington water emergency occurred on the eve of the reauthorization battles for both of the major laws that protect our drinking water, will no doubt throw a spotlight on the problem and inform the upcoming debate. Below are a number of bills currently in front of the House that Clean Water Action supports:

- * Congressman Studds' (D-MA) "Polluter Pays" bill, H.R. 2199, points to a new and appropriate source of funds -- polluters.
- * Congressman Oberstar's (D-MN) "Polluted Runoff" bill, H.R. 2543, gets at the ounce of prevention that is worth far more than a pound of cure -- protecting the source of our drinking water from a largely unregulated witches brew of pollutants that flow off the land and our city streets
- * Congressman Edwards' (D-CA) "Wetlands" bill, H.R. 350, and Congresswoman Norton's (D-DC) "Urban Watershed" bill get at the need to protect the buffers that act as the kidneys and lungs of our water supply

However, the above bills, as good as they are, will be undercut if the Bliley (R-VA) Slattery (D-KS) "Un" Safe Drinking Water Act bill, H.R. 3392, becomes law. This bill fails to address the growing drinking water crisis across our country and points us in the wrong direction. This bill guarantees an unsafe water supply for many Americans. Among other things the bill would:

- * Scrap the current requirement that EPA set 25 new maximum contaminant levels (MCL's) every three years;
- * Substitute cost instead of health as the key to setting standards;
- * Abandon watershed management plans which protect the source of our drinking water;
- * Require EPA to eliminate monitoring, compliance, and enforcement requirements for already regulated contaminants that do not occur at levels posing public health concerns;
- * Allow "variances" when water systems say they are unable to inexpensively install the necessary technology to remove contaminants -- substituting so-called "affordable"

technologies for best available technologies which are now required.

* * *

. Clean Water Action looks forward to working with the Committee in its efforts to strengthen the Clean Water Act and Safe Drinking Water Act.

**AMERICAN WATER WORKS ASSOCIATION
STATEMENT FOR THE RECORD BEFORE
THE SUBCOMMITTEE ON WATER RESOURCES
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES**

**ON
DRINKING WATER TREATMENT IN THE DISTRICT OF COLUMBIA**

**SUBMITTED BY
JOHN H. SULLIVAN
DEPUTY EXECUTIVE DIRECTOR
AMERICAN WATER WORKS ASSOCIATION**

DECEMBER 20, 1993

INTRODUCTION

The American Water Works Association (AWWA) appreciates the opportunity to comment on the recent drinking water crisis in the District of Columbia. You are to be strongly commended for holding a timely hearing on this issue to assist the Congress in developing legislation to help provide safe drinking water not only to the residents of the District of Columbia but to all the American people as well. AWWA supports efforts to assure continued high quality water resources for the nation.

AWWA is the world's oldest and largest scientific and educational association of water supply professionals. Founded in 1881, we now have over 55,000 members. We include public drinking water departments and authorities, private companies, scientists, educators, engineers, managers, and individuals engaged in the water supply profession. Our members represent over 80 percent of the drinking water delivered in the United States. In addition, many of our members have dual responsibility for both drinking water and waste water. The membership of AWWA comprises the most extensive network of knowledge and experience for the whole spectrum of water supply concerns. The AWWA expertise encompasses managers and operators running public water systems, public health officials overseeing regulatory programs, engineers designing distribution systems, scientists analyzing water quality, researchers developing new treatment technologies, academicians studying innovative water management techniques, and educators imparting knowledge concerning water. AWWA stands ready to share this knowledge and experience with you. As a scientific and educational organization, the purpose of AWWA is, and has been since its founding, to promote public health, safety and welfare through provision of quality drinking water. As such, we have a continuing interest in protecting America's water supply from contamination.

In this statement we will comment on the recent drinking water crisis in the Nation's Capitol and its relationship to the drinking water crisis earlier this year in the City of Milwaukee Wisconsin;

the national problem of contamination of the nation's drinking water supply and suggested Clean Water Act measures to address this issue.

DRINKING WATER CRISIS IN THE DISTRICT OF COLUMBIA

The recent events in Washington, DC, illustrate just how vulnerable our drinking water supplies are to contamination. The Environmental Protection Agency did the right thing by issuing the boil water notice as soon as they were aware of the turbidity increase at the Dalecarlia water treatment plant. Excess turbidity is an indicator that a risk of microbial contamination may exist also. However, turbidity is a performance indicator only and not a positive indication that a real threat exists. The microbial threat can only be confirmed by testing. Increased turbidity in source water requires a treatment adjustment to remove the increased turbidity. Should turbidity in finished water exceed the standard under certain conditions, an increased microbial risk must be assumed and a boil water notice issued until it is confirmed that the water in the system is not contaminated. The events in Milwaukee last spring illustrate the prudence of issuing the boil water notice in Washington.

However, the Washington incident should not be compared too closely with the Milwaukee incident. While there were some similarities, the events were quite different in some key aspects.

- In Washington, the turbidity levels in the raw water exceeded those recorded in Milwaukee.
- In Washington, the increased turbidity was only for a duration of a few hours. In Milwaukee, the increase lasted for several days.
- In Washington, no indication of microbial contamination was found. In Milwaukee a major disease outbreak occurred.
- In Milwaukee, the system had changed to a less effective coagulant to comply with the recently promulgated Lead and Copper Drinking Water Regulation. The new coagulant used was not effective and the system was overwhelmed by the storm run-off contamination at the intake.

In reviewing drinking water incidents in Washington, it is important to make a distinction between those events which were in the public water system and those that were not. Two other recent incidents involving drinking water in the District of Columbia, which received media attention, need to be put in perspective.

This past summer, bacteria was found in a water sample taken from a closed junior high school building. That bacteria resulted from water remaining dormant in unused plumbing and was caused by an internal cross-connection with the toilets in the building. This was not an incident of contaminated water coming from the public water system.

The question of lead in the cities water supply has been recently raised in the media. It is rare that lead comes from a public water system. In Portland, Oregon, which has perhaps one of the most pristine water sources in the nation and has no lead service lines or other lead in the public water system, high levels of lead were found in drinking water samples. The source of lead is in the home plumbing. So when reports of high lead levels in drinking water are made, it is important to determine the source. Most high lead levels in drinking water are from the lead in brass faucets in the home not from the public water system.

Washington was fortunate that no microbial contamination occurred. However, other areas of the country are facing increased environmental pollution in their drinking water sources. Safe drinking water is provided in the United States by local systems of multiple barriers to prevent or eliminate contamination. Thus, the Safe Drinking Water Act alone, without measures in the Clean Water Act to address pollution of drinking water sources, cannot do the job. AWWA believes that these issues should be addressed during the reauthorization of the Clean Water Act and appropriate amendments to the Act made.

In the remainder of this statement we would like to bring to the attention of the Subcommittee several issues in the Clean Water Act which, while national in scope, have a direct bearing on protecting the watershed which supplies the Washington DC area drinking water.

ENVIRONMENTAL CONTAMINATION OF DRINKING WATER

Today, the people of the United States enjoy the highest quality drinking water in the World. Largely through the efforts of the members of AWWA over the years, water borne diseases from drinking water have been minimized in the United States. In recent years, the Clean Water Act has been a significant factor in this effort by reducing the dumping of raw sewage and toxic substances into our nation's water. Despite these advances made in cleaning up water pollution in America through the Clean Water Act, we still are faced with the continuing and growing problem of environmental contamination of drinking water from pollution in our nation's source water. This is a challenge we in America must address to provide safe drinking water for ourselves and our posterity.

This challenge was dramatically illustrated for the nation by the recent outbreak of disease in Milwaukee, Wisconsin, in March and April of this year. The disease outbreak was caused by a protozoan, called Cryptosporidium, that contaminated the drinking water in Milwaukee and ten surrounding communities.

Studies on the environmental occurrence of Cryptosporidium began in 1985 and in 1988 the Environmental Protection Agency (EPA) added Cryptosporidium to the Drinking Water Priority List for possible future regulation, but it is currently not regulated under the Safe Drinking Water Act (SDWA). According to the National Academy of Science, Cryptosporidium qualifies as one of the new and emerging microbes that could spring up to threaten the nation's health. The detection, treatment and removal of Cryptosporidium is very difficult. In response to the growing cases of cryptosporidiosis in humans since 1976, the American Water Works

Association Research Foundation has undertaken a total of 35 research projects costing \$9.2 million relating to Cryptosporidium. AWWA, in conjunction with EPA, conducts the only analytic method training available for Cryptosporidium.

In a statement presented to this subcommittee in August 1991, AWWA highlighted the growing problem concerning Cryptosporidium. The Milwaukee case is only the latest and most publicized. In January 1987, an outbreak occurred in Carrollton, Georgia, with 10,000 estimated cases. In Medford (Jackson County), Oregon, an outbreak occurred during the months of January through June of 1992 with an estimated 3,000 to 15,000 cases of cryptosporidiosis. Additionally, there may have been many more smaller outbreaks that have not been documented because individual doctors may not have been aware of the cause of the illness they were treating or if the illness was part of a larger pattern. Clearly, pollution prevent in our nation's drinking water sources is necessary to help protect the American people from Cryptosporidium as well as other waterborne pathogens and toxic chemicals.

The case of Cryptosporidium in Milwaukee serves as clear indication that the Clean Water Act requires amending to further protect the health of the American people.

PROTECTION OF DRINKING WATER SOURCE SUPPLIES

Conspicuous by its absence in the Clean Water Act, is any consideration of the protection of drinking water sources as a major goal of the Act. The Congressional Declaration of Goals and Policy of the Clean Water Act states that it is a national goal to achieve water quality that provides for the protection and propagation of fish, shellfish, and wildlife, and provides for recreation in and on the water. In addition, Section 304 requires that the Environmental Protection Agency (EPA) provide guidance on the factors necessary to protect aquatic life and recreational activities in and on the water, and Section 305 requires state reports on water quality to address their progress in achieving water quality that protects aquatic life and allows water recreational activities. Clearly missing from these sections is the protection of water as a drinking water source. AWWA strongly recommends that the Clean Water Act provide the same status for protection of drinking water sources as it does for the protection and propagation of fish, shellfish, wildlife, and recreation. Attached to this testimony, is a draft with suggested text changes to The Clean Water Act which will address this omission.

The Congressional Declaration of Goals and Policy should include the protection of drinking water sources and public health in the objective of the Act. This is essential, so that protection and consistent emphasis is provided in all sections of CWA, especially where program development is required to carry out the objectives of the Act.

Further, this change to the Clean Water Act would compliment and thus be consistent with the Safe Drinking Water Act (SDWA), by requiring the development of programs to provide for the protection of drinking water sources. The SDWA emphasizes source water protection and encourages water purveyors to use the highest quality sources. National Primary Drinking Water Regulations require public water systems to conduct sanitary surveys which emphasize

the characterization of actual and potential pollutant sources for the drinking water supply and identify measures which should be taken to improve drinking water quality. An amendment to the Clean Water Act is needed which would protect drinking water sources. The amendment would provide for the development of programs to implement sanitary survey recommendations to control the discharge of contaminants regulated under the SDWA and other pollutants in drinking water sources, including microbial and toxic contaminants.

In Section 304 of the Act, the EPA Administrator should be required to provide information to the states on factors necessary for the protection of public water supplies to help them develop water quality criteria and effluent limitations which adequately protect public water supplies.

Section 304 of the Act requires the EPA to promulgate regulations concerning, among other things, the monitoring requirements for National Pollutant Discharge Elimination System (NPDES) permitted discharges. However, the current monitoring requirements for point source discharges are not specific enough with respect to all designated uses. Additional monitoring requirements are necessary to cover pollutants whose levels are regulated in drinking water as contaminants by the National Primary Drinking Water Regulations promulgated pursuant to the SDWA. Clearly, monitoring for regulated drinking water contaminants, and potential contaminants such as cryptosporidium, should be required for discharges to navigable waters which are also designated as source water supplies for drinking water. Further, the public health effects of curtailing any discharge should be considered as well as the effects on fish, shellfish and wildlife. We believe that water quality standards must be broad enough to address the critical issue of balancing both the human health and ecological risks. These standards should continue to be set by the states based on greatly improved guidance from the federal level.

In Section 305 of the Act, the state reports on water quality should be required to include information concerning the extent to which all navigable waters of the state provide for the protection of public water supplies. The Clean Water Act primarily provides for reducing the discharge of pollutants to already impaired water bodies and does not focus on pollution prevention for those water bodies at risk of water quality degradation. The state water quality report, being the primary source of water quality information for all navigable waters of a state, identifies water quality problems which require attention in state water quality control plans. Clearly the protection of drinking water source water supplies should be a key element of these plans. Planning efforts should be directed to execution on a watershed or aquifer basis to adequately control critical water resources for all intended purposes and with a full understanding of both quality and quantity issues.

WATERSHED PROTECTION

AWWA believes that the most effective water quality begins with watershed protection and prevention of water quality degradation. The Water Quality 2000 Phase III Report on solutions states that the greatest challenge facing the nation is preventing water pollution associated with runoff from rural and urban areas. The report recommends that Congress create a new national program for watershed protection. This is long overdue!

The control of non-point source pollution is a critical component of the Clean Water Act. The current provisions of the Clean Water Act have reduced water pollution from point sources (end-of-pipe). Water pollution could be reduced further through the control of non-point sources such as agriculture and urban runoff. In particular, agriculture runoff containing herbicides and pesticides is found with increasing frequency and at high concentrations in rivers and streams and poses an ecological and public health threat.

Public water suppliers have been active on non-point source pollution from agriculture sources. The Missouri River Public Water Supply Association (MRPWSA) has conducted an intensive monitoring study of the Missouri River by analyzing samples collected from sites on a daily basis in May, June and July. The sites were selected to bracket the major tributaries feeding into the lower Missouri River and also based on their proximity to a U.S. Army Corps of Engineers river gaging station. A total of 589 samples were analyzed in 1991. Of the 589 samples, the following herbicides were measured above the detection level: simazine was detected 2 times; alachlor was detected 104 times; and atrazine was detected 441 times. 165 samples were above the atrazine maximum contaminant level (MCL). The average atrazine concentration ranged from 0.72 micrograms/liter (ug/l) to 3.22 ug/l at the sampling sites. The maximum atrazine concentration ranged from 6.71 ug/l to 11.10 ug/l at the sampling sites. The study was repeated during 1992 and is now in progress for 1993. The data from 1992 is not yet fully analyzed; however, it shows the same general trends as in 1991, with several days above the MCL.

In addition, the United States Geological Survey (USGS) is monitoring herbicide concentrations at several Midwestern locations. In 1989 and 1990, USGS conducted a reconnaissance study from 149 randomly selected sites in 122 river basins. Samples were collected in three phases during March and April (pre-planting); in May and June (post-planting); and in October and November (harvest). Fifty samples were collected in the first phase and 12 and 145 in the second and third phases, respectively. Atrazine was detected in 91 percent of the pre-planting samples and 98 percent and 76 percent of the post-planting and harvest samples, respectively. Several of the herbicides were found to exceed their MCLs. 52 percent of the sites exceeded the atrazine MCL, 32 percent for alachlor, and 7 percent for simazine. 29 percent of the sites exceeded four times the atrazine MCL, which would cause an immediate violation of the Nation Primary Drinking Regulations promulgated pursuant to the SDWA for a public water system. Exceedances of the MCLs were also found for combinations of herbicides. In the post-planting phase, 23 percent of the sites exceeded the MCLs for two herbicides and ten percent for three herbicides.

AWWA feels that this data indicates a potential problem with pesticide and herbicide contamination in drinking water sources. The contamination levels for a multi-month period pose a potential problem to public health without final drinking water treatment. This issue alone could force installation of extensive granular activated carbon treatment at billions in capital expenditures that will be a burden on the public at large, rather than the "polluter." This potential problem could be reduced by addressing the issue under non-point source pollution and watershed protection in the reauthorization of The Clean Water Act.

Other non-point sources of pollution should be controlled such as nitrates from fertilizer runoff which can cause methemoglobinemia or "blue-baby syndrome" and runoff from cattle feeds lots which contain a much higher concentration of pathogenic organisms such as Cryptosporidium than natural background concentrations. Overflows from combined sewers in urban areas can also increase the concentration of pathogenic organisms and other pollutants during storm events. Additionally, urban storm sewer runoff contains many pollutants such as oil, gasoline and other synthetic organic chemicals. The use of best management practices can greatly reduce the pollutant load from non-point sources such as agricultural runoff, combined sewer overflows, and urban sewer runoff. We recommend that the Clean Water Act be amended to reduce pollution from these sources.

Section 402 of the Clean Water Act provides an exemption from NPDES permit requirements for agriculture return flows. As a result, the return flows to the nation's waters is not strictly regulated nor are there monitoring requirements. A monitoring program is necessary to identify contaminants and determine their levels and assess. With this information, the effects of the contaminants and best management practices can be established to minimize the discharge of the contaminants and protect the source water supply as designated use of the nation's waterways. In addition, monitoring agriculture non-point sources of pollution is necessary to implement and evaluate the progress of the Agriculture Water Quality Protection Program which will be developed pursuant to Section 1439 of the Food, Agriculture, Conservation, and Trade Act of 1990 (1990 Farm Bill). The present language of the Clean Water Act is clearly inadequate for these purposes. An amendment which requires monitoring may lead to better management practices of agriculture, silviculture (forestry) and livestock management that are more beneficial to the enhancement of water quality and protection of the environment and public health.

AWWA thanks the Subcommittee for this opportunity to present our views on drinking water treatment in the District of Columbia. Clean water is essential to the nation's public water supply and AWWA supports the efforts of the Subcommittee to achieve that goal. We are continuing to develop and investigate issues pertaining to the Clean Water Act and would be pleased to provide the Subcommittee updated information on these issues. We welcome the opportunity to continue to work with the Subcommittee to develop appropriate legislative language on the issues and concerns that we have raised, as well as others.

This concludes the AWWA statement on drinking water treatment in the District of Columbia.

Thank you for this opportunity to present our views. We would be happy to address any questions or comments that the members of the Subcommittee may have.

A BILL TO AMEND THE FEDERAL WATER POLLUTION CONTROL ACT
TO PROVIDE INCREASED PROTECTION OF PUBLIC WATER SUPPLIES

SECTION-BY-SECTION ANALYSIS

Section 1. Short Title and Table of Contents.

Section 2. Findings and Purpose.

(a) The purpose of the Act is to amend the Federal Water Pollution Control Act to provide increased protection of public drinking water supply sources from contamination by providing for more effective monitoring and control of discharges of drinking water contaminants into navigable waters, and increased emphasis on the use and value of public drinking water source supplies as a designated use of navigable waters in setting water quality standards.

(b) Despite progress, water quality problems persist throughout the Nation. Contaminants regulated pursuant to the Safe Drinking Water Act (SDWA) are found in surface source waters in excess of the maximum contaminant level (MCL) established by the Environmental Protection Agency. Not all drinking water contaminants regulated pursuant to SDWA are regulated under the Federal Water Pollution Control Act. The protection of drinking water source supplies as a designated use of navigable waters presently is not a major goal or policy of the Federal Water Pollution Control Act. Navigable waters are the source of drinking water for sixty-five per cent of the Nation's population. As a matter basic to human life, the Federal Water pollution Control Act must place increased emphasis on public health and the protection of drinking water source supplies in establishing water quality standards.

Section 3. Declaration of Goals and Policy.

Establishes the protection of public drinking water supplies as a national goal in addition to protecting fish, shellfish, and wildlife and providing for recreation. Requires consideration of the protection of public drinking water supplies in each section of the Federal Water Pollution Control Act requiring the development of programs to carry out the objectives of that Act. Complements and provides a means of achieving provisions of the Safe Drinking Water Act which provide for the protection of surface water as a component of providing safe drinking water.

Section 4. Information and Guidelines.

Requires the Administrator of the Environmental Protection Agency to provide information to the States to assist in the development of water quality criteria and effluent limitations which adequately protect public drinking water supplies. Adds protection of public water supplies to the criteria upon which reports in Section 304 are based. Complements and provides a means of achieving provisions of the Safe Drinking Water Act which provide for the protection of surface water as a component of providing safe drinking water.

Section 5. Water Quality Inventory.

Requires the States to report to the Administrator of the Environmental Protection Agency on the quality and vulnerability of those navigable waters serving as public drinking water supplies and the progress of the States to protect public water supply designated use. Complements and provides a means of achieving provisions of the Safe Drinking Water Act which provide for the protection of surface water as a component of providing safe drinking water.

Section 6. Selective Monitoring to Protect Drinking Water

Requires the Administrator to develop additional monitoring requirements for unregulated pollutants discharged into navigable waters of the Nation which are suspected to adversely affect one or more designated uses and requires the States to develop programs for monitoring pollutants in agriculture return flows. Complements and provides a means of achieving provisions of the Safe Drinking Water Act which provide for the protection of surface water as a component of providing safe drinking water.

103d CONGRESS

1st Session

S. _____

To Amend the Federal Water Pollution Control Act to provide increased protection of
public drinking water supplies.

IN THE SENATE OF THE UNITED STATES

date _____

Sponsor _____

A BILL

To amend the Federal Water Pollution Control Act to provide increased protection of
public drinking water supplies.

Be it enacted by the Senate and House of Representatives of the United States of America
in Congress assembled,

SHORT TITLE AND TABLE OF CONTENTS

SECTION 1. (a) SHORT TITLE - This Act may be cited as the "Public Drinking Water
Supply Protection Act of 1993."

(b) TABLE OF CONTENTS. -

- Sec. 1. Short title and table of contents.
- Sec. 2. Findings and purpose.
- Sec. 3. Declaration of goals and policy.
- Sec. 4. Information and guidelines.
- Sec. 5. Water quality inventory.
- Sec. 6. Selective Monitoring to Protect Drinking Water

FINDINGS AND PURPOSES

SEC. 2 (a) PURPOSES. - The purposes of this Act are:

- (1) To provide for increased protection of the Nation's public drinking water supply sources from contamination.
- (2) To provide for the more effective control of discharges of contaminants affecting drinking water quality into the Nation's navigable waters.
- (3) To provide for increased emphasis on the use and value of public drinking water source supplies as a designated use of the Nation's navigable waters in setting water quality standards.

(b) FINDINGS. - The Congress finds that -

- (1) Despite significant progress in water pollution control over the past twenty years, serious water quality problems persist throughout the Nation.
- (2) The United States Environmental Protection Agency reports that, of the 45 per centum of waters assessed throughout the Nation, 30 per centum do not meet water quality standards for designated uses.
- (3) The United States Environmental Protection Agency reports that 25 per

centum of the Nation's freshwater lakes are impaired and another 20 per centum are threatened with impairment.

(4) More than 10 per centum of municipalities continue to discharge untreated or undertreated sewage to receiving waters and over one thousand communities discharge overflows of untreated sewage from combined sewers during storms.

(5) Industries discharge large amounts of conventional and toxic pollutants to waters throughout the Nation, including an estimated three hundred and sixty million pounds of toxic pollutants directly to receiving waters and five hundred and seventy million pounds of toxic pollutants to public sewage systems per year.

(6) Navigable waters are the source of drinking water for sixty-five per centum of the Nation's population.

(7) Federal and State governments must place increased emphasis on the protection of public drinking water source supplies as a designated use of the Nation's navigable waters in setting water quality standards.

(8) Expanded and better coordinated water quality monitoring activities by States and the Federal Government are needed to improve the quality of information on water quality trends and conditions for the protection of public drinking water source supplies as a designated use of the Nation's navigable waters.

DECLARATION OF GOALS AND POLICY

SEC. 3. Section 101(a)(2) of the Federal Water Pollution Control Act (33 U.S.C. 1254) is amended to read as follows:

"(2) it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife; provides for

the protection of public drinking water supplies; and provides for recreation in and on the water be achieved by July 1, 1983;"

INFORMATION AND GUIDELINES

SEC. 4. (a) Section 304(a)(1)(A) of the Federal Water Pollution Control Act (33 U.S.C. 1254) is amended to read as follows:

"(A) on the kind and extent of all identifiable effects on health and welfare including, but not limited to public drinking water supplies, plankton, fish, shellfish, wildlife, plant life, shorelines, beaches, esthetics, and recreation which may be expected from the presence of pollutants in any body of water, including ground water;"

(b) Section 304(a)(2)(B) of the Federal Water Pollution Control Act (33 U.S.C. 1254) is amended to read as follows:

"(B) on the factors necessary for the protection and propagation of shellfish, fish, and wildlife for classes and categories of receiving waters, for the protection of public drinking water supplies, and to allow recreational activities in and on the water; and..."

WATER QUALITY INVENTORY

SEC. 5. (a) Section 305(b)(1)(B) of the Federal Water Pollution Control Act (33 U.S.C. 1254) is amended to read as follows:

"(B) an analysis of the extent to which all navigable waters of such State provide for the protection and propagation of shell fish, fish, and wildlife, protection public drinking water supplies, and allow recreational activities in and on the water;"

(b) Section 305(b)(1)(C) of the Federal Water Pollution Control Act (33 U.S.C. 1254) is amended to read as follows:

"(C) an analysis of the extent to which the elimination of the discharge of pollutants and

a level of water quality which provides for the protection and propagation of a balanced population of shellfish, fish, and wildlife, for the protection of public drinking water supplies, and allows recreational activities in and on the water, have been or will be achieved by the requirements of this Act, together with recommendations as to additional action necessary to achieve such objectives and for what waters such additional action is necessary;"

SELECTIVE MONITORING TO PROTECT DRINKING WATER

Sec. 6. (a) POINT SOURCE DISCHARGES -- Section 304 of the Federal Water Pollution Control Act (33 U.S.C. 1314) is amended by adding at the end thereof the following new subsection "(n)":

"(n) The Administrator shall, within one year from the date of enactment of this subsection, promulgate regulations establishing minimum procedural requirements and timetables for representative monitoring of point source discharges to surface waters serving as direct sources of drinking water and data reporting for unregulated pollutants of human health concern, for all State and Federal programs under Section 402 of this Act, taking into consideration the costs associated with the monitoring requirements. "Unregulated pollutants" are defined as those pollutants for which quantitative measurements in point source discharges are not required, pursuant to regulations outlining NPDES permit requirements (40 CFR Part 122, Appendix D), yet which may occur in point source discharges and adversely impact one or more designated uses of the waters of a State. The Administrator shall publish, and review annually thereafter, the list of unregulated pollutants for which there is a reasonable basis to believe may adversely impact the attainment or maintenance of that water quality which provides for the protection of public drinking water supplies, the protection and propagation of shellfish, fish, and wildlife, and allows recreational activities in and on the water. The list of unregulated pollutants shall

include as a minimum: total organic carbon (TOC), disinfection by-product precursors, Giardia, Cryptosporidium, and enteric viruses."

(b) AGRICULTURAL RETURN FLOWS -- Section 304 of the Federal Water Pollution Control Act (33 U.S.C. 1314) is amended by adding at the end thereof the following new subsection "(o)":

"(o) The Administrator shall, within one year from the date of enactment of this subsection, promulgate guidelines to assist States in developing programs for representative monitoring of agriculture return flows for contaminants that are known or suspected to occur in the receiving water bodies and for which there is reason to believe the discharge of agricultural return flows contributes to the occurrence. The purpose of the monitoring program is to increase the understanding of the impact of agricultural return flows on the designated uses of the navigable waters of the Nation. Within 36 months of enactment, the States shall establish such monitoring programs."

JUNE 20, 1994

U.S. House of Representatives
COMMITTEE ON PUBLIC WORKS
AND TRANSPORTATION

SUITE 2165 RAYBURN HOUSE OFFICE BUILDING
 WASHINGTON DC 20515
 (202) 225-4472

MEMORANDUM

TO: Members of the Subcommittee on Water Resources and Environment

FROM: The Honorable Douglas Applegate, Chairman

DATE: June 16, 1994

RE: Hearing on Federal Review of the Operation of Water Treatment Facilities for the Metropolitan Washington Area.

On Monday, June 20, 1994, at 9:30 a.m. in Room 2167 Rayburn Building, the Subcommittee on Water Resources and Environment will hold a second hearing on the operation of the water treatment facility that serves the District of Columbia and several suburban jurisdictions. Testimony will be presented by federal and local officials and a drinking water consultant. The purpose of this hearing is to learn what changes have been made in the operation of the Corps of Engineers facilities to decrease the likelihood of a repeat of the December 8, 1993 "boil water" order which affected the Washington Metropolitan area. There will also be a discussion of facility upgrades necessary to meet likely changes in drinking water requirements and to bring the Dalecarlia Plant up to a state-of-the-art facility.

Background

The U.S. Army Corps of Engineers owns and operates the Dalecarlia and McMillan Water Treatment Plants. The local governments own the transmission and distribution system. Both plants supply potable water to the District of Columbia, Arlington County, the City of Falls Church, National Airport, the Pentagon, and parts of Fairfax County and the Maryland suburbs. Because turbidity levels (cloudiness) detected in water filtered through the Dalecarlia plant were in violation of EPA's Surface Water Treatment Rule at 1 a.m., 2 a.m., and 3 a.m. on December 7, 1993, on December 8, 1993, the EPA issued a "boil water" notice to the nearly 1 million area residents who receive water from the plant. Turbid water indicates the possible presence of cryptosporidium and giardia. The "boil water" order remained in effect until December 10, 1993, after two days of tests were negative for the parasites cryptosporidium and giardia.

Investigations of the incident

Following the "boil water" incident, Colonel J. Richard Capka, Director of the Baltimore Division of the U.S. Army Corps of Engineers, completed an internal investigation of the circumstances surrounding the December incident. He found that one of the factors causing the crisis was plant employees' failure to add the correct amount of aluminum sulfate (known as alum) at the time when the turbidity of the water entering the plant increased significantly due to heavy rains.

Malcom Pirnie investigation

In response to the December 7-8 incident and an earlier violation of microbial standards for coliform during September and October, 1993, the Environmental Protection Agency directed the Corps of Engineers to retain an independent contractor to conduct an independent review of the water treatment plants. On December 22, 1993, the Army Corps of Engineers issued a work order to Malcom Pirnie, Inc. to conduct a Comprehensive Performance Evaluation, to investigate the circumstances surrounding the "boil water" notice and assess the administrative performance and organization of the Washington Aqueduct Division of the Corps.

Malcom Pirnie's investigation found that the rise in the turbidity level resulted from the following factors:

- the depletion of filter aid polymer and flow changes produced when the No. 3 flume and basin were removed from service combined to cause turbidity breakthrough on the filters,
- plant operators were not monitoring the turbidity of the water leaving the filters, they were unaware that the filters were experiencing turbidity breakthrough, and
- the Washington Aqueduct Division's practice was to backwash filters based on their length of time in service without regard to the effluent turbidity, resulting in filters remaining in operation long after they needed to be cleaned, and
- the arrangement of the alum feed lines resulted in the alum coagulating in the water and being inadequately dispersed.

Plant Administration

The Washington Aqueduct Division is organized into four branches reporting to the Division Chief. According to the Malcom Pirnie Report, the current Division Chief is in the process of establishing a philosophy of operations and maintenance and setting performance standards for each of the branches.

The Malcom Pirnie Report recognized weaknesses in the behavior of the organization. Staff training for the most part has been on-the-job. Very few of the operators are certified, whereas Maryland and Virginia both have operator certification programs. The Division Chief is pursuing opportunities that may be available to involve the staff in these programs.

The Malcom Pirnie report states that communication is a problem within the Washington Aqueduct Division. While the procedures are in place for eventually forwarding information upward along the chain-of-command, information flow downwards is more on a need-to-know basis in many areas. Personnel are not clear on their authority and responsibility, and are often kept in the dark on many issues and information that would perhaps help them function more effectively.

According to Malcom Pirnie, "Standard Operating Procedures" for the Dalecarlia Plant are not formalized, consisting primarily of documents hung on the wall or on desktops. Malcom Pirnie recommends that a water plant of this size should have a formal operation and maintenance manual which establishes clear and concise operating procedures. It should clearly document the responsibilities of each staff position and establish efficient procedures to be followed in resolving problems and unusual treatment events. The McMillan Plant has such a manual which was prepared when the plant was built.

The Washington Post on June 10, 1994 reported nine employees throughout the organizational structure were penalized for their actions surrounding December 7-9, 1993 incident.

EPA investigation

The investigation conducted by the National Enforcement Investigations Center of the Environmental Protection Agency found that several other factors contributed to the December incident:

- Lack of shakers in alum storage bins

Periods of high condensation or of low inventory result in lumps forming in the alum. When lumps form in the storage bins, constant operator attention is needed to break them up. Operators have complained that the use of the metal rod to break up lumps has contributed to alarm failures.

- Use of cationic polymer

For many years, cationic polymer has been added just prior to the filters during periods of rising turbidity, but dosage levels have not been established and records are not maintained on usage levels. Operators have stated that adequate polymer supplies are not always available at the plant and that they sometimes run out.

- Sedimentation

Currently, all four sedimentation basins must be taken off-line and drained to remove solids. On October 6, 1993, Basin 2 was taken off-line because of the accumulation of solids and remained off-line until December 13, 1993. When basins have to be taken off-line, stress is placed on the system.

- Filtration

Single-media v. dual-media filters

Currently, there are 13 single-media and 23 dual-media filters at Dalecarlia, but the plant personnel do not control flows to the filters based on media type. The Surface Water Treatment Rule guidance recommends that single media filters not exceed a flow rate of 3 gallons per minute (gpm), while dual media filters not exceed a flow of 6 gpm, however flow to the filters typically exceeds these rates.

Cleaning and disinfecting the filters

Plant employees often fail to backwash and disinfect the filters after interruptions in service. In addition, as many as 30% of the filter cleaners (known as "filter sweeps") routinely do not work, and it has been a number of years since annual maintenance has been performed on them.

Improvements made since the December incident

According to Malcom Pirnie, several significant changes have been made to reduce the possibility of the re-occurrence of December's incident:

- plant employees now check the effluent turbidity regularly and when the turbidity level reaches 0.3

Nephelometric Turbidity Units, the filters are backwashed,

- turbidity recording meters are being installed on each filter,
- streaming current detectors are being added to each flume down from the point of alum additions, which will alert the plant operators of changes or interruptions in the alum feed or in the quality of the raw water, and
- the application points for the polymers have been moved to more appropriate locations.

Plant Modernization

The Malcom Pirnie organization in March, 1994 prepared a conceptual plan for upgrading the Dalecarlia and McMillan Water Treatment Plants to state-of-the-art facilities.

Changes in drinking water regulations and advances in treatment technologies have led to the belief that the Washington Plants need to be further modernized. The report developed a conceptual plan for the modernization of the Washington Aqueduct water treatment plants by:

- Defining a state-of-the-art treatment system for a raw water supply with characteristics similar to the Potomac River.
- Considering the impact of anticipated changes to the Safe Drinking Water Act regulations.
- Identifying the differences that exist between a state-of-the-art water treatment plant and the Dalecarlia and McMillan water treatment plants.
- Developing a preliminary conceptual plan for providing state-of-the-art treatment systems at the Dalecarlia and McMillan water treatment plants.

The modernization plan prepared for the two plants includes a phased implementation plan and budget. Malcom Pirnie contemplates a capital program in the range of \$225 million.

Legislative Proposals

A bill, H. R. 4007, to allow the Corps of Engineers to borrow funds from the Federal Financing Bank to finance capital improvements for the water treatment system was introduced by Representatives Moran, Norton, Filner, Wynn and Towns.

A similar amendment was attached to the Senate's reauthorization of the Safe Drinking Water Act, S. 1547 by Senator John Warner.

Currently, capital improvements must be funded by the Washington Aqueduct's customers on a pay-as-you-go basis.

103D CONGRESS
2D SESSION

H. R. 4007

To amend the Water Supply Act of 1958 to provide for the funding of capital improvements at the Washington Aqueduct, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

MARCH 10, 1994

Mr. MORAN (for himself and Ms. NORTON) introduced the following bill; which was referred to the Committee on Public Works and Transportation

A BILL

To amend the Water Supply Act of 1958 to provide for the funding of capital improvements at the Washington Aqueduct, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. CAPITAL IMPROVEMENTS AT WASHINGTON**
4 **AQUEDUCT.**

5 Section 301 of the Water Supply Act of 1958 (43
6 U.S.C. 390b) is amended by adding at the end the follow-
7 ing new subsection:

8 “(e) Notwithstanding any other provision of law—

9 “(1) the Chief of Engineers of the Army Corps
10 of Engineers may borrow from the Federal Finance-

1 ing Bank such amounts as the Chief determines are
2 necessary to finance capital improvements at the
3 Washington Aqueduct;

4 “(2) upon request of the Chief, the Board of
5 Directors of the Federal Financing Bank shall make
6 loans to the Chief for the purpose described in para-
7 graph (1); and

8 “(3) any amounts borrowed by the Chief under
9 this subsection shall be repaid by users of the Wash-
10 ington Aqueduct over such period of time, and shall
11 be subject to such other terms and conditions, as the
12 Board determines to be appropriate.”.

FEDERAL REVIEW OF THE OPERATION OF WATER TREATMENT FACILITIES FOR THE METROPOLITAN WASHINGTON AREA

MONDAY, JUNE 20, 1994

HOUSE OF REPRESENTATIVES,

SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT,
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION,

Washington, DC.

The subcommittee met, pursuant to call, at 9:30 a.m., in Room 2167, Rayburn House Office Building, Hon. Douglas Applegate (chairman of the subcommittee) presiding.

Mr. APPLGATE. Good morning.

Today's hearing is a follow-up to the hearing that this committee held last December when we examined the causes leading to the boil water order which was issued to the residents of the District of Columbia and some parts of Maryland and Virginia.

The water filtration facilities for these jurisdictions are operated by the United States Corps of Engineers and it was their Dalecarlia Water Treatment Plant which allowed water with turbidity in excess of Federal standards to enter into the water distribution system.

The increased turbidity carries with it a risk of exposing those drinking the water to cryptosporidium and giardia, which can make people sick, if they are very young or very old, or have weakened immune systems, and it will kill.

It was cryptosporidium that was carried by the Milwaukee municipal drinking water system which made over 400,000 people in that area extremely ill and killed over 100 of them.

Last December, we explored the causes of the problem, which included outdated equipment, personnel problems and insufficient supplies. We were assured that something would be done in order to assure that it does not happen again.

Within the past two weeks, the Corps announced some of the steps it has already taken. Today we hope to learn what else has been done, what will be done, and when it will be done to prevent a repeat of what happened last December.

In order to help fund the needed improvements, a bill, H.R. 4007, has been introduced which authorizes the Corps of Engineers to borrow from the Federal Financing Bank. Repayment would come from the ratepayers.

At this juncture, I am going to recognize the Representative from Washington, DC, for whatever remarks she has to make at this time.

Representative Norton.

Ms. NORTON. Thank you very much, Mr. Chairman.

I want to begin by thanking Chairman Doug Applegate whose splendid leadership and cooperation since the boil water incident of last December has been consistent and generous. Although the subcommittee necessarily has been engrossed in work to reauthorize the Clean Water Act, one of the toughest pieces of legislation to move through the Congress, Chairman Applegate readily agreed to take on this additional burden. His staff has spared no diligence, including visiting the Dalecarlia and McMillan Water Treatment Plants—all without missing a beat in pursuing the subcommittee's statutory priorities.

The boil water incident of last December raised unprecedented questions about the operation of the Dalecarlia and McMillan Water Treatment Plants that are responsible for purifying the water supply for the District of Columbia, Arlington County, the City of Falls Church, National Airport, the Pentagon, and parts of Fairfax and Prince George's Counties.

Although the dangerous parasite cryptosporidium ultimately was not found in the water, the incident was an early warning of operational, staff and physical problems at the plants. The necessity to boil water caused great and unnecessary expense that will probably never be fully documented, and extraordinary inconvenience, loss of productivity and enormous anxiety that cannot be retrieved.

While no deaths or illnesses were reported due to the cloudy water, the necessity for a boil water alert in the capital of the United States was an astonishing and embarrassing incident.

This subcommittee immediately scheduled a hearing to ascertain the facts and seek evidence and assurances concerning the water supply. The hearing, on December 20, 1993, in and of itself was important to restore public confidence in the water supply in the near term.

At the time of the hearing, however, the investigations of the incident had only then been initiated. We indicated that a second hearing would be necessary to ensure that all the necessary changes and improvements had been made.

We believed also that full confidence in the water supply could not be restored until there was a full airing in this subcommittee of what really happened, what was recommended, and what has been done about it. Addressing these questions is the purpose of today's hearing.

To the credit of the EPA and the Army Corps of Engineers, there have been four separate investigations of the incident: the Corps' internal investigation conducted at the highest levels by staff that were not involved in the incident; an independent peer review conducted by a Newport News water utility; Malcolm Pirnie's Comprehensive Performance Evaluation, and an investigation by the EPA's National Enforcement Investigations Center. The apparent agreement among the various investigations offers some confidence in the resulting findings.

The confluence of a series of four missteps and problems was responsible for the presence of cloudiness in the water at the Dalecarlia plant. They were the closing of the McMillan plant for

routine maintenance, a shortage of alum because of contract problems, a shortage of polymer, and human error.

However, the professional obligation of the EPA and the Corps was to foresee, indeed assume, that one or more problems could occur. Especially since drinking water was involved, their obligation was to establish and enforce back-up procedures that were total, complete and virtually infallible. Instead, the absence of incidents in the past led to a "cruising along" mentality.

Much like the Titanic, not until the ship hit the iceberg was there thought about what to do. Incredibly, operations manuals date from the 1920s, and there were no other written procedures or guidelines for dealing with emergencies. The plants themselves are in need of modernization. However, the problems encountered last December spoke to the need to modernize procedures.

Nevertheless, the December incident has called particular attention to the physical condition of the plants and to the need for improved procedures for notifying affected jurisdictions. I thank Congressman Moran, a member of the Appropriations Committee, for his leadership in drawing legislation to provide the Corps with the authority to borrow money to finance capital improvements at the Dalecarlia and McMillan plants.

In addition, because the plants are under the jurisdiction of Federal agencies, but are locally funded, regular oversight, which might have helped to prevent the December incident, has not occurred except through the District of Columbia appropriations process where the emphasis has been on the budget. Because the Corps is a Federal entity, oversight has been with the EPA. For Congress, the question becomes, "Who is watching the EPA?" The answer must be, "We are." I will try to make sure that oversight of the two facilities occurs regularly.

Thank you very much, Mr. Chairman, for your leadership and attention to this very important issue.

Mr. APPLEGATE. Thank you, Ms. Norton.

[The statement of Ms. Norton follows:]

ELEANOR HOLMES NORTON
DISTRICT OF COLUMBIA

COMMITTEE ON
PUBLIC WORKS AND TRANSPORTATION

SUBCOMMITTEES
VICE CHAIR, PUBLIC BUILDINGS AND GROUNDS
WATER RESOURCES AND ENVIRONMENT

COMMITTEE ON
POST OFFICE AND CIVIL SERVICE

SUBCOMMITTEE
CHAIR, COMPENSATION AND EMPLOYEE BENEFITS



Congress of the United States
House of Representatives
Washington, D.C. 20515

COMMITTEE ON
THE DISTRICT OF COLUMBIA

SUBCOMMITTEES
CHAIR, JUDICIARY AND EDUCATION
FISCAL AFFAIRS AND HEALTH

JOINT COMMITTEE ON THE ORGANIZATION
OF CONGRESS

DEMOCRATIC STUDY GROUP
EXECUTIVE COMMITTEE

STATEMENT OF CONGRESSWOMAN ELEANOR HOLMES NORTON
AT A HEARING OF THE SUBCOMMITTEE ON
WATER RESOURCES AND ENVIRONMENT
ON THE OPERATIONS OF THE DALECARLIA AND MCMILLAN
WATER TREATMENT FACILITIES

June 20, 1994

I want to begin by thanking Chairman Doug Applegate, whose splendid leadership and cooperation since the "boil water" incident of last December has been consistent and generous. Although the subcommittee necessarily has been engrossed in work to reauthorize the Clean Water Act, one of the toughest pieces of legislation to move through the Congress, Chairman Applegate readily agreed to take on this additional burden. His staff has spared no diligence, including visiting the Dalecarlia and McMillan Water Treatment Plants -- all without missing a beat in pursuing the subcommittee's statutory priorities.

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To the credit of the EPA and the Army Corps of Engineers, there have been four separate investigations of the incident: the Corps' internal investigation conducted at the highest levels by staff that were not involved in the incident; an independent peer review conducted by a Newport News water utility; Malcolm Pirnie's Comprehensive Performance Evaluation; and an investigation by the EPA's National Enforcement Investigations Center. The apparent agreement among the various investigations offers some confidence in the resulting findings.

The confluence of a series of four missteps and problems was responsible for the presence of cloudiness in the water at the Dalecarlia plant. They were the closing of the McMillan plant for routine maintenance, a shortage of alum because of contract problems, a shortage of polymer, and human error.

However, the professional obligation of the EPA and the Corps was to foresee, indeed assume, that one or more problems could occur. Especially since drinking water was involved, their obligation was to establish and enforce back up-procedures that were total, complete, and virtually infallible. Instead, the absence of incidents in the past led to a "cruising along" mentality. Much like the Titanic, not until the ship hit the iceberg was there thought about what to do. Incredibly, operations manuals date from the 1920s, and there were no other written procedures or guidelines for dealing with emergencies. The plants themselves are in need of modernization. However, the problems encountered last December spoke to the need to modernize procedures.

Nevertheless, the December incident has called particular attention to the physical condition of the plants and to the need for improved procedures for notifying effected jurisdictions. I thank Congressman Moran, a member of the Appropriations Committee, for his leadership in drawing legislation to provide the Corps with the authority to borrow money to finance capital improvements at the Dalecarlia and McMillan plants.

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Mr. APPLEGATE. We are happy to have sitting in with us Representative Moran, and Ms. Byrne is one of our very knowledgeable and astute members of the full committee and the subcommittee.

We are also delighted to have with us as the Ranking Member, Mr. Steve Horn.

Mr. HORN. Thank you very much, Mr. Chairman, and General Genega, I am delighted to see you here. I have had many decades of respect for the work of the Army Corps of Engineers in reference to this city as a student in high school here in the forties and living here for 13 years in the fifties and sixties, I knew what fine public works we have had in this community.

The streetlights worked. The place was spotless, et cetera, in the forties. So facilities age, infrastructure ages and obviously one of the things we are all interested in, as the Delegate from the District of Columbia notes, is what is the condition of the infrastructure and have we sort of lived in the past and perhaps not been asked to up date it as we should for a growing metropolitan area such as we all inhabit.

So I look forward to your testimony on giving us a frank assessment of the various water processing facilities under the jurisdiction of the Corps and to what degree we need to do more than we have done and perhaps have asked to have done.

So I thank you, Mr. Chairman and Ms. Norton.

Ms. NORTON [presiding]. Thank you very much, Mr. Horn. I would like to recognize Ms. Byrne, a member of the subcommittee.

Ms. BYRNE. Thank you, madam Chair. I also want to thank Chairman Applegate for holding this second hearing to analyze what went wrong at the Dalecarlia plant last December.

I would like to welcome back General Genega of the Corps of Engineers and Mr. Laskowski of the EPA and welcome Mr. Noonan, whose firm has played such a vital role in examining this problem; also our fellow local officials, Robert Mallett of the District of Columbia, Mary Margaret Whipple of Arlington, and Robert Perry of Falls Church, who are here to represent three of the four affected localities.

We need to recall the confusion I believe and the anguish that we all experienced last fall, both as local residents who depend on safe drinking water, and as officials responsible for public safety. While no one was injured, we have to consider that it could have reached monumental proportions as it did in Milwaukee.

I am heartened to see that the Corps and the EPA have taken this incident quite seriously, both by analyzing the breakdown of the system in December and by investigating concerns raised by this subcommittee about the number of long-standing factors at the plant which contributed to the crisis.

I look forward to hearing the progress that EPA and the Corps have made and the continuing steps they plan to make. While we need to investigate what happened last fall, I hope this committee also will discuss an even larger issue, one that officials at the Federal, State and local levels have been gingerly sidestepping, namely the safety of our drinking water.

While this committee's jurisdiction is primarily over quality of navigable waters in our lakes and rivers, the real issue at hand is

what we should be doing to protect the safety of our drinking water.

Many of us work on major environmental legislation such as the Clean Water Act and Superfund, but when we consider these issues, we are always discussing the potential for widespread problems that might arise down the road if changes are not made in the current standards or problems that might affect this segment of the population.

I challenge anyone in this room to find an issue which impacts the public more than the safety of our Nation's drinking water. All of us depend on clean, safe tap water for cooking, washing and drinking. The average person consumes two liters of water a day. Nowhere else do we have to place such faith in our public works system, and it makes sense that protecting the public welfare means protecting the potable water supply.

This requires ensuring incidents like Dalecarlia do not happen again and finding ways to make the public feel confident in the water that they drink. If anyone doubts that people do not trust their water, just go to the super market and see how common it is for people to spend their hard-earned money for bottled water that gives them a feeling of security.

While some progress has been made to rectify this situation, there is still far more to do. For one thing, we still do not have in place a quick, accurate and cost-effective test for cryptosporidium, the bacteria which contaminated Milwaukee's water supply and was thought to be in Dalecarlia. Likewise, the subcommittee has yet to find a final plan for quick response to such a crisis.

I am still concerned that my constituents in Northern Virginia would remain uninformed should another crisis occur. Hopefully this hearing will shed some light on these issues and I commend the chairman for his diligence and also Ms. Norton for her watchful eye on this issue.

Thank you, Madam Chair.

Ms. NORTON. Thank you very much, Ms. Byrne.

[The statement of Ms. Byrne follows:]

LESLIE L. BYRNE
11TH DISTRICT, VIRGINIA

COMMITTEE
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SURFACE TRANSPORTATION
WATER RESOURCES AND ENVIRONMENT
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CONGRESSWOMAN LESLIE L. BYRNE

**STATEMENT FOR HEARING ON
DALECARLIA WATER TREATMENT PLANT**

**SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION**

JUNE 20, 1994

I want to thank Chairman Applegate for holding this second hearing to analyze what went wrong at the Dalecarlia plant last December. I would like to welcome back Major Genega of the Corps of Engineers and Mr. Laskowski of the EPA, and welcome Mr. Noonan, whose firm has such a vital role in examining this problem.

I would also like to welcome some of our local officials: Robert Mallett of the District of Columbia, Mary Margaret Whipple of Arlington County and Robert Perry of Falls Church City, who are here to represent three of the four localities affected.

We need to recall the confusion and anguish that many of us experienced last fall -- both as local residents who depend upon safe drinking water, and as officials responsible for public safety. While no one was injured by this crisis, we have to consider that it could have reached monumental proportions as it did in Milwaukee.

I am heartened to see that the Corps and the EPA have taken this incident quite seriously, both by analyzing the breakdown of the system in December and by investigating concerns raised by this subcommittee about a number of long-standing factors at the plant which contributed to the crisis. I look forward to hearing the progress that the EPA and the Corps have made and the continuing steps they plan to take.

While we need to investigate what happened last fall at Dalecarlia, I hope this subcommittee also discusses an even larger issue, one that officials at the federal, state and local levels have been side-stepping, namely the safety of our drinking water. While this committee's jurisdiction is primarily over the quality of navigable water in our lakes and rivers, the real issue at hand is what we should be doing to protect the safety of our drinking water.

Many of us work on major environmental legislation, such as the Clean Water Act and Superfund. But when we consider these issues, we are always discussing the potential for widespread problems that might arise down the road if changes are not made in the current standards, or problems that might affect a segment of the population.

I challenge anyone in this room to find an issue which impacts the public more than the safety of our nation's drinking water. All of us depend upon clean, safe tapwater for cooking, washing and drinking. The average person consumes two liters of water a day. Nowhere else do we have to place such faith in our public works system, and it just makes sense that protecting the public's welfare means protecting their potable water supply.

This requires ensuring that incidents like Dalecarlia do not happen again, and finding ways to make the public feel confident in the water they drink. If anyone doubts that people do not trust their water, just go to the supermarket and see how common it is for people to spend their hard-earned money for bottled water that gives them a feeling of security.

While some progress has been made to rectify the situation, there is far more to do. For one thing, we still do not have in place a quick, accurate and cost-effective test for cryptosporidium, the bacteria which contaminated Milwaukee's water and was thought to be in Dalecarlia. Likewise, the subcommittee has yet to see a final plan for a quick response to such a crisis. I am still concerned that my constituents in Northern Virginia would remain uninformed should another crisis occur.

Hopefully, this hearing will shed some light on these issues, and I commend the Chairman for his diligence in bringing this to light.

Ms. NORTON. I would like to recognize now Mr. Moran.

Mr. MORAN. Thank you, Ms. Norton.

I appreciate you chairing this hearing for us and the comments of Mr. Horn and Ms. Byrne, my colleagues and friends. You have made the point that we had a real scare, and in fact, the cryptosporidium could have been in the water supply. Fortunately, it was not, but it should be seen as a warning sign to us that we have to ensure that the real thing never does happen.

I know that is why General Genega is here and Mr. Laskowski is here. That is what we would like to focus this hearing on, how we make sure that we can avoid a situation where someone with a compromised immune system or an elderly person or a young child had taken a glass of water and cryptosporidium had been in the water and, in fact, we had had a death or a very serious illness come about as a result of our not stopping this when we had the opportunity.

It is clear we have to improve the situation at the Dalecarlia plant and the Corps of Engineers has undertaken extensive studies in that regard, particularly the comprehensive performance evaluation that was undertaken by Malcolm Pirnie.

Some recommendations and evaluations have been implemented, I know, and I applaud the Corps for moving swiftly and efficiently to improve the water treatment plant, but all of us know that based on that Malcolm Pirnie evaluation, much more needs to be done to the plant over the next decade to ensure that our water supply, in fact, remains safe.

In order to meet anticipated Federal standards, particularly the Safe Drinking Water Act, the Corps will have to invest between \$150 million and \$300 million in capital improvements to the Washington aqueduct, but unlike most private utilities across the country, the Corps does not have the authority to borrow money in order to finance those improvements. That is the big difference.

A corporate public utility can borrow the money and can spread the cost out over a number of years and their customers can pay it without any serious financial burden. The big difference here, and really the principal reason why these capital improvements have not been made is that the Corps doesn't have that kind of financing flexibility. It relies on its customers in Arlington, Falls Church and the District of Columbia to pay upfront for capital improvements.

So while the local jurisdictions have paid for those improvements willingly, they cannot afford increases of \$30 million to \$40 million a year to finance necessary capital improvements, and that is what we are talking about. Without some relief, these local jurisdictions wouldn't be able to pay for the costly improvements and we could well find ourselves again in a crisis situation.

That is why I introduced the legislation H.R. 4007. It was really at the recommendation particularly of Arlington County to do this. They brought this issue originally to my attention. Senator Warner subsequently introduced it on the Senate side and, in fact, I think he was successful in attaching it to the Safe Drinking Water Act on the Senate side.

The legislation would give the Corps of Engineers the authority to borrow from the Federal Treasury the amounts necessary to un-

dertake the needed capital improvements to the Washington Aqueduct. Other publicly or privately-owned facilities are able to issue those bonds and borrow from other sources and they can amortize the capital improvement costs over the useful life of the project.

This legislation simply gives the Army Corps of Engineers the ability to finance in the same fashion that the vast majority of public utilities across the country, in fact every private public utility, is able to.

Under the terms of the legislation, the Corps borrows the money from the Treasury and local water users agree to be responsible for paying back the loan over a reasonable period of time. It would be the same standard of financing that all utility customers are used to.

Chairman Dixon of the Appropriations Subcommittee on the District of Columbia has agreed to include H.R. 4007 in the D.C. appropriations bill with the amendments to the Safe Drinking Water Act, including it on the authorizing side.

I think that we have a good chance of getting this legislation passed this year. Clearly the approval of the Public Works Committee is necessary to achieve that objective, however.

As you know, the Appropriations Committee doesn't like to do anything that is not fully authorized and in accordance with the wishes of the authorizing committee. In the meantime, I hope that the Corps of Engineers can continue working with the affected local governments to prepare for this new financing option.

I look forward to today's hearing and hope that we can continue working together to prevent any future problems with our water supply.

Thank you, Madam Chairwoman.

Ms. NORTON. Thank you.

[The statement of Mr. Moran follows:]

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APPROPRIATIONS

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STATEMENT OF REP. JAMES P. MORAN
HEARING OF THE PUBLIC WORKS AND TRANSPORTATION
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

June 20, 1994

Mr. Chairman:

Thank you for holding this hearing today. It is important that we use this opportunity to ensure that all necessary steps are taken to protect our water supply in order to provide clean, safe drinking water to our region.

In many ways the water crisis that occurred last December was a valuable lesson for our region. Though all of us feared that the potentially life-threatening bacteria, cryptosporidium, might be in the water supply, subsequent testing found none. After three days, the boil-water alert was suspended and all of us could go back to our normal routines. But what if that hadn't been the case? What if cryptosporidium had been in the water supply and someone with a compromised immune system, or an elderly person, or a child decided to have a glass of water and got sick? We must ask ourselves those questions and ensure that we are never again faced with a crisis situation that threatens the health of our citizens.

I know that the Corps of Engineers has undertaken extensive studies in recent months, including the Comprehensive Performance Evaluation undertaken by Malcolm Pirnie, Inc. Some recommendations of these evaluations have already been implemented and I applaud the Corps for moving swiftly and efficiently to improve the water treatment plant. But, all of us know, based on the Malcolm Pirnie evaluation, that much more needs to be done to the plant over the next decade to ensure that our water supply remains safe.

In order to meet anticipated federal standards, including the Safe Drinking Water Act, the Corps will have to invest between \$150-\$300 million in capital improvements to the Washington Aqueduct. However, unlike most private utilities across the country, the Corps does not have the authority to borrow money in order to finance these improvements. It relies on its customers--in Arlington, Falls Church, and the District of Columbia--to pay, up-front, for capital improvements. While the local jurisdictions have paid for improvements willingly, they

simply cannot afford increases of \$30-40 million per year to finance necessary capital improvements. Without some relief, these local jurisdictions may not be able to pay for the costs of these improvements and we may once again find ourselves in a crisis situation.

That is why I introduced legislation, H.R. 4007, along with Senator John Warner, which would give the Corps of Engineers the authority to borrow from the Federal Treasury amounts necessary to undertake capital improvements to the Washington Aqueduct. Other publicly or privately owned facilities are able to issue bonds or borrow from other sources in order to amortize capital improvement costs over the useful life of the project. This legislation will put the Corps on equal footing.

The Corps would borrow money from the Treasury and the local water users would agree to be responsible for paying back the loan over a reasonable period of time. This would be the same standard financing tool afforded similar private and public utility customers.

Chairman Dixon of the Appropriations Subcommittee on the District of Columbia, has agreed to include H.R. 4007 in the D.C. Appropriations bill. Companion legislation introduced by Senator Warner has already passed the Senate as an amendment to the Safe Drinking Water Act. I certainly hope this provision will have the blessing and support of this committee as it moves forward in the legislative process.

In the meantime, I hope that the Corps of Engineers can continue working with the affected local governments to prepare for this new financing option.

I look forward to today's hearing and hope that we can all continue working together to prevent any future problems with our water supply.

Ms. NORTON. I would like to welcome our first two witnesses who will testify as a panel: Major General Stanley Genega, the Director of Civil Works, U.S. Army Corps of Engineers, and Mr. Stanley Laskowski, Deputy Regional Administrator of EPA Region III.

Welcome. General Genega, we would be pleased if you would go first.

TESTIMONY OF MAJ. GEN. STANLEY G. GENEGA, DIRECTOR OF CIVIL WORKS, U.S. ARMY CORPS OF ENGINEERS, ACCOMPANIED BY BRIG. GEN. PAUL Y. CHINEN, NORTH ATLANTIC DIVISION COMMANDER, AND COL. J. RICHARD CAPKA, BALTIMORE DISTRICT COMMANDER

General GENEGA. Thank you, Ms. Norton.

Ms. Norton and members of the subcommittee, I am pleased to be here today to provide an update on activities by the U.S. Army Corps of Engineers to assure the continued provision of high-quality water to the customers of the Washington Aqueduct.

Accompanying me today is Brigadier General Paul Chinen, the Commander of our North Atlantic Division, and Colonel Rick Capka, Commander of the Baltimore District, who have responsibilities for operation of the Aqueduct.

With your permission, I will summarize orally the full statement I have submitted for the record.

Ms. NORTON. I would appreciate all witnesses summarizing to the extent that they can.

General GENEGA. Thank you.

I want to assure everyone that the Washington Aqueduct and all its facilities, particularly the Dalecarlia Water Treatment Plant have performed well and have provided safe quality water to all its customers since the December 1993 incident.

The system has met EPA's average turbidity performance criterion of 0.5 turbidity units for filtered water. We have, in fact, averaged less than 0.15 turbidity units with a maximum single reading of 0.42 turbidity units. This has been accomplished despite the fact that raw water turbidities have reached levels higher than those that preceded the December incident.

As you pointed out in your statement, we have thoroughly evaluated our operations through a commander's internal investigation, an independent peer review, a Comprehensive Performance Evaluation and an EPA investigation.

To assure an impartial expert assessment of our operations, we requested the sister water utility in Newport News, Virginia to do what essentially amounted to a peer review and make recommendations for immediate short-term improvements. We contracted with a recognized expert in the field of water treatment, Malcolm Pirnie, to do the Comprehensive Performance Evaluation of our overall operations and to look at the incident that occurred in December.

We did not wait for final reports from these investigations to make changes. As soon as prudent interim recommendations were available, we implemented the appropriate adjustments.

For example, we provided additional supervision to ensure problems are recognized and appropriately addressed in a timely manner. We completed the installation of streaming current monitors

that provide continuous direct readings of the effectiveness of the alum dosage. We completed the installation of filter condition monitoring equipment that allows us to respond to filter efficiency variations as they occur in a very timely fashion.

We adjusted the application of chemical polymers to maximize the effectiveness of both the coagulation and filtration processes. We established three thresholds which trigger the cleaning of a filter.

The thresholds are when filtered water turbidity exceeds 0.3 turbidity units for that filter, when there is a 6-foot head loss on that filter, or when the filter has been operated for 72 hours, whichever comes first.

Additionally, we have initiated improvements in our formal training. This training will ultimately include the implementation of a formal operator certification program that will be an Association of Boards of Certification sanctioned program. Certification will be a prerequisite for specific positions and for career advancements.

The Corps has an ongoing capital improvements program at the Washington Aqueduct which includes replacements, upgrades and improvements needed to ensure reliability and to meet current and projected regulatory standards.

This major capital improvements program has been coordinated with our customers.

In response to the request by both this subcommittee and EPA Region III to define a state-of-the-art water treatment plant and to provide a plan for its implementation, we contracted with Malcolm Pirnie to provide us a concept plan for this state-of-the-art water treatment facility. We have done a comparative review of our capital improvements program and the Malcolm Pirnie recommendations, which are very similar.

Using recommendations from both proposals and in conjunction with EPA and our customers, we have put together a conceptual modernization plan for implementation subject to the availability of funds. This plan has been delivered to EPA Region III for their concurrence.

Briefly, our conceptual modernization plan defines a state-of-the-art water treatment facility to be implemented in three stages. The first stage identifies improvements to meet the requirements of the next round of the Safe Drinking Water Act which by 1998 will call for a reduction in the average levels of trihalomethanes from 100 micrograms per liter to 80 micrograms per liter.

Our current average trihalomethanes level is 92 micrograms per liter. The estimated cost of these water quality and system reliability improvements is as high as \$125 million, with completion expected by June 1998.

The second stage improvements address the anticipated further reduction of allowable trihalomethanes levels to 40 micrograms per liter around the turn of the century.

The estimated cost of these improvements to meet these second stage requirements is as high as \$200 million, with completion expected around January 2002.

The third stage, beyond 2002, identifies requirements to meet potential future safe drinking water requirements, addressing syn-

thetic organic compounds and pesticides. As the regulatory standards are as yet unknown and the treatment methods not specifically defined, I have no reliable estimate of the range of costs for that third stage at this time.

I might digress from my prepared oral statement here to address Congressman Moran's comment about approximately \$300 million. I would offer the comment that \$300 million is approximately the high side amount for stage one and stage two.

At this point, those amounts are probably low since we are talking about a conceptual plan, and we do not yet have an estimate for stage three. So if anything, that number is, I would say, low in my professional judgment.

I would like to address four other areas of concern that were raised by the subcommittee last December during my testimony. The first was customer coordination. We have formalized a process for holding at least quarterly meetings among our various customers and corps executive level personnel. A series of these meetings have already taken place to discuss various issues, including the funding of the modernization plan and its sequencing.

The second area was notification procedures. From my perspective, we have two sets of notification procedures: those internal to the Corps and those external to the EPA and involving the served customers.

To address internal needs, we have established since January 1994 various supervisory notification thresholds for various conditions. We also revised the procedures for reporting those all the way through our responsible officials, including the Secretary of the Army.

Additionally, we have reviewed and improved our external notification procedures and recently exercised them at an off-duty time with the EPA. They worked very well.

We are continuing to work closely with the EPA and the Metropolitan Washington Council of Governments in their development of area-wide notification procedures.

The third area involved an employee's allegation of improper operations and improper disposal of hazardous wastes, specifically PCBs and battery acid, at the Aqueduct.

Colonel Capka contracted with an outside environmental firm to investigate these allegations and conducted numerous internal investigations. None of the allegations were substantiated as alleged.

There was one location where lead contamination of the ground was found. It was attributable to a battery acid spill. Although the contamination did not exceed established standards, the soil in the area was removed and the area was cleaned up.

More recently, a buried battery casing was found at another location. Testing of that area is underway and appropriate actions will be taken.

The final area related to allegations that there were equal employment opportunity issues at the Washington Aqueduct Division.

Colonel Capka directed the District's EEO Office to conduct an investigation and a series of discussion sessions with all the employees from January through March of this year to determine if there were EEO issues, to identify them, and to take appropriate action.

Seventy-five employees participated in these sessions at various times. The EEO officer and the commander have determined from these sessions that the issues being aired were not EEO issues, but rather management-related issues.

Corrective action has been taken or is underway on these. We will continue to be proactive in these efforts to identify both those management issues and any EEO issues should they arise.

In closing, I would like to stress again that we take supplying safe and adequate water to our customers very seriously. We have been producing quality water since the incident, which is safe to drink. Many of our employees are customers of this system and our headquarters is also within the service area.

We are committed to taking every step necessary to preclude a recurrence of the type of incident that occurred last December.

Ms. Norton, that concludes my statement. I will be certainly happy to answer any questions.

Ms. NORTON. Thank you, General Genega.

Next we will hear from Mr. Laskowski before questions.

TESTIMONY OF STANLEY L. LASKOWSKI, DEPUTY REGIONAL ADMINISTRATOR, MID-ATLANTIC REGION 3, U.S. ENVIRONMENTAL PROTECTION AGENCY

Mr. LASKOWSKI. Thank you and good morning, Ms. Norton and members of the subcommittee.

My name is Stanley Laskowski and I am the Deputy Regional Administrator of U.S. EPA Region III. I want to thank you for this opportunity to provide an update on EPA's perspective on the D.C. water supply situation.

I submitted written testimony to you and at this time would like to summarize some of the high points of that testimony.

I will address the issues in the following order, EPA's investigation of the cause of the December 1993 problem that led to the boiled water notice, EPA's regulatory actions taken in response to the problem, and conclusions as to what is needed as we move forward.

Let me begin by saying, however, that in my opinion, the D.C. water supply is safe. The plant has not violated EPA standards since the December incident, and the Corps of Engineers has fully cooperated with EPA in making the corrections needed.

I believe the EPA standards will continue to be met at the plant if the current high level of diligence and vigilance is maintained at the plant by the Corps of Engineers, and that the modernization of the plant is funded and implemented.

Now turning to EPA's investigation of the cause of the December 1993 incident, EPA's review was conducted by our Denver office, the National Enforcement Investigation Center who produced a report in March 1994. Among the findings were that they could not find all the critical data needed to find the precise cause of the problem, but they did agree with the Corps of Engineers that operator error was indicated and that other factors may have contributed to the problem.

The report gave recommendations to the Corps of Engineers to address in their comprehensive performance evaluation and also gave Region III recommendations for EPA to address.

I am happy to report that EPA is in the process of addressing all these recommendations.

Turning to the EPA comprehensive water order issued in March, issued after discussions with the Corps of Engineers, and issued on consent with the Corps, it ordered among other things to complete the comprehensive performance evaluation, to evaluate the Corps of Engineers notification procedures to be used if a problem occurs, to complete the analysis of the capital improvement needed, and to develop an implement a monitoring program for cryptosporidium.

I am happy to report that the Corps of Engineers is in full compliance with the order.

In conclusion, I want to make a few observations.

First, I think that significant progress has been made in correcting the factors that led to the problem we had in December. Progress has also been made in improving communications within the Corps of Engineers and between all parties.

Monitoring has started for cryptosporidium and the Corps has moved out quickly on that. That will help our decision-making in the future if we do happen to have a problem.

The first steps have been taken to make the D.C. water supply system truly a state-of-the-art system. Still much work has to be done to follow through on these actions.

The Corps of Engineers management needs to continue its excellent attention that has been given to the system since December of 1993. EPA, my office and our headquarters office needs to continue to work closely with the Corps and the customers to perform our regulatory duties and we are committed to do that.

Thank you for the opportunity to make these comments. I will be glad to answer questions.

Ms. NORTON. Thank you very much.

Ms. NORTON. I am going to ask a few questions and then I am going to move on to my colleagues and come back and ask other questions.

First for the record, has fecal coliform or E. coli been found, verified or not, at any point at the plant since December?

General GENEGA. Yes it has, ma'am. There have been a couple of incidents of a first positive, but the follow-ons have been negative and there has been no correlation with testing done in the distribution system.

Ms. NORTON. How usual are these first positive findings at the plant? Are they rare?

General GENEGA. They are not uncommon, ma'am. I would not say they are rare.

Ms. NORTON. Was the public notified?

General GENEGA. EPA is notified every time we have that positive.

Ms. NORTON. Is there no obligation to notify the public on first positives of this kind?

General GENEGA. My obligation is to notify EPA. The first positive, as I understand—and I will defer to EPA on the technical side—as I understand it, the first positive is not considered conclusive and that is the reason for the automatic action to take a second test.

If that test were positive, then in fact we would have the boiled water notice in the distribution system like we had at Woodson High last December. But the first positive is only considered indicative, not conclusive.

Ms. NORTON. How many times have there been first positives found since December?

General GENEGA. About a half a dozen throughout the system, ma'am. I can submit for the record the particulars of those.

Ms. NORTON. I wish you would.

[The information received follows:]

CECW-AL

July 25, 1994

Hearing of June 20, 1994 before
House Committee on Public Works and Transportation
Subcommittee on Water Resources and Environment
on

Review of the Operation of Water Treatment Facilities for
the Metropolitan Washington Area

The following list identifies the number of Total Coliform first positive samples taken within the major water distribution systems served by the Washington Aqueduct water treatment facilities. We have included the results from the samples taken in June 1994.

TOTAL COLIFORM POSITIVE SAMPLES

MONTH	DISTRIBUTION SYSTEM				TOTAL:
	:District of:	:	Falls	: National	:
	: Columbia	: Arlington	: Church	: Airport	:
Dec, 1993:	1	0	0	0	1
Jan, 1994:	0	0	0	0	0
Feb, 1994:	3	2	0	2	7
Mar, 1994:	6	0	0	0	6
Apr, 1994:	0	0	0	0	0
May, 1994:	0	0	0	4	4
Jun, 1994:	12	2	1	9	24
	22	4	1	15	42

Ms. NORTON. All I am trying to do—Mr. Laskowski, perhaps you can be helpful on this question—is get a point of reference here as between our system and other systems in the country. Half a dozen first positives over a six-month period; what does that indicate?

Mr. LASKOWSKI. Let me try to be responsive to that. I know you asked similar questions the last time we met and I asked my staff if we could get a better handle on that.

Throughout these systems, there are usually many samples taken, some are required by regulations and others are taken just in the operations of a plant. I think as I understand it, there has been fecal coliform hits, as we call them, in the plant.

I don't know the exact number. It is not unusual to occasionally get these hits. Sometimes you have problems with the sampling equipment and that is why rather than announcing that there is a problem, you want to confirm there is a problem.

From information I have, I am aware that these types of situations happened at other plants. There are follow-ups quite often, you don't get confirmation that there is a problem.

I think it is a reason to be vigilant and to be concerned and to make sure you do the follow-up test. At the same time, we encourage the Corps, as they have been, to take additional tests throughout the plant and throughout the system and not just simply follow the regulations, but go beyond them and take still additional tests, which they have done.

If occasionally you get a hit, I think the prudent thing to do is to go back and try to see if you can get confirmation of that or not and if there is a problem, there would be notification.

Ms. NORTON. You haven't given me a frame of reference. Perhaps I will ask the question another way. What was the source of the coliform or the e. coli that was found half a dozen times since December? Where does it come from? Why do we have it in the first place?

General GENEGA. I am not sure I am qualified to answer the question. It is not uncommon. To say that it was rare—what is rare is the second positive at that same sample point. That is rare. I think that would be a fair description.

In some cases, it has been attributed in the past to poor sampling techniques. That is a training issue and a standard operating procedure issue that we work with EPA and the people who are trained—

Ms. NORTON. After the four investigations, wouldn't we be able to eliminate poor sampling techniques?

General GENEGA. I think we certainly minimize them, ma'am. But when we are dealing with human beings, eliminate may be too strong a word. I guess that would be the desirable state.

Certainly that is our goal. I am trying to offer what could have been a contributing factor to a positive reading.

Ms. NORTON. Let me tell you what my concern is, gentlemen. I want to make clear that I am not alleging that there was any problem in the water. Again you have done your job. That way we have not come close to having any problem in the water since December. That is very important.

This subcommittee is concerned generally with the notion of safe drinking water. It is one of the acts going through the committee this year.

If I knew that it was not unusual in the United States to have these first positives, then I just would go on to my next question, gentlemen. My problem is that you have not assured me or the subcommittee that what happened in the first six months was not routine. You haven't assured me that it is any different—that it is different or not different from what has happened with water supplies across the country.

Therefore, I am in a state of unreadiness, particularly when I hear that sampling techniques are often the problem, yet investigations say those problems should have been eliminated.

Mr. Laskowski is right; at the last hearing, in order to fairly judge you, I asked for context. That is all I am asking for now. No lay person has any way to judge whether those six first coliform and e. coli findings on first readings had any significance at all.

When you tell me there are six, that is the same as telling me there was one. I don't understand what it means.

Does it mean that we have difficulties with hazardous water generally that comes into the plant? Does it mean that there is still a problem in the plant? Are the findings of these first readings things that you can do anything about?

These are the questions that your answers leave me with.

General GENEVA. I will try to address in part what you said and then defer to EPA for the technical side.

Of those six, there were no E. coli positives. Those were fecal positives. On the sampling techniques, we don't know in any particular case whether the sampling technique was at fault. I just offered that it could be a problem with the sampling technique.

Ms. NORTON. What could be the problem with the sampling technique?

General GENEVA. For example, if the sample were not a clean sample, if the facility from which it were taken were dirty, it could result in the water sample indicating it was dirty when in fact the facility, the water fountain itself, was perhaps dirty. We really don't know that.

Ms. NORTON. You go back to the source—to the facility from which you got the water—or do you simply do another test?

General GENEVA. No, ma'am. We go back to the same point and do another test and additionally when we have a first positive, we are required to go back to the same point and take a test. Usually we take a couple of other tests around the same sections of the distribution system. Again because we don't know what the problem is going to be and we hope to maximize the amount of information, if there is a problem on that second go-round, that we have.

Lastly, I would attempt again to clarify not from the technical background since EPA sets the standards, but as I understand it, that that number of first positives is not unusual.

Mr. LASKOWSKI. Let me say that I don't have good frequency data because that frequency data is not required to be reported for all samples taken. The only data that is reported is samples taken in particular locations throughout the system. So we have data on that, but these additional samples that have been taken, all well

run systems, would take additional samples, and they don't necessarily have to report them to EPA, so I don't have the frequency data.

I would also concur that it is not unusual to get positive hits. Without being able to tell you what the frequency of these hits are, these things do happen. There are pollutants that sometimes get through the system or there could be monitoring concerns. I would say it is not unusual that this happens. These systems are not perfect yet.

Ms. NORTON. Thank you.

Now, there have been reports about disciplinary actions that have been taken affecting nine Corps employees. I wish you would elaborate, General Genega, on the conduct for which they were disciplined. I am less concerned with that than I am with the disciplinary action that was taken, although I would like you to elaborate upon the disciplinary action as well.

General GENEGA. There were nine employees that were disciplined, four non-supervisory, five supervisory. Basically, the generic issue at hand was nonperformance of required duties, dereliction of duties, if you will.

Those nine disciplinary actions—

Ms. NORTON. Dereliction of what duties? What was the conduct involved?

General GENEGA. The operator erred in not taking appropriate actions at the time the higher turbidity readings were taken.

Ms. NORTON. Why did they not do so?

General GENEGA. I have no idea. The individual operator has been quite quiet as to what he did or did not do at the time. Since he was the only one in the facility, I suspect we will never know that. He has performed those duties in excess of eight years, has had to take those actions numerous times, so from our perspective, we were quite confident that he knew what the appropriate actions were and many times in the past had taken them.

Ms. NORTON. Had he performed satisfactorily up to the time of the incident?

General GENEGA. Yes, ma'am.

Ms. NORTON. When you questioned him, he was not able to say why he did not take the action he had taken repeatedly over the years?

General GENEGA. I did not personally question him.

Ms. NORTON. You, sir, are the agency.

General GENEGA. But my understanding was he had nothing to offer. That may well have been on advice of counsel at that point.

Ms. NORTON. What action was taken as to him?

General GENEGA. That particular individual—I know him generically, but I don't know him specifically—that was a demotion, ma'am.

Ms. NORTON. And is he not at that facility any longer?

General GENEGA. He is at the facility, but does not have the same duties. He was demoted and put into less responsible by grade duties.

Ms. NORTON. Go ahead with the others, please.

General GENEGA. The operator error on the next shift of not having reviewed the indicators from the previous shift; the supervisory

responsibility in the morning to have reviewed that same information; supervisory lack of knowledge; and in one case, the supervisor did not have knowledge that those numbers in fact were a violation of EPA surface water treatment rule standards.

One of the supervisors did not have that knowledge.

Ms. NORTON. Did that go to training? How did he get to be a supervisor without understanding what the EPA standards were? Do you have to demonstrate any knowledge?

General GENEAGA. You demonstrate competence. Prior to this time, we did not have a certification program. We are in the process of implementing a certification program. By the end of this year and into the early spring 1995, we will be able to, and in fact, will have tested for specific bodies of knowledge or pieces of knowledge, if you will.

Ms. NORTON. Pending certification which is not yet in place, who is doing the job of making sure that EPA standards are met?

General GENEAGA. The supervisors are doing that job, ma'am. The additional supervisor, we added a supervisor on each shift.

Ms. NORTON. So the ones who are doing it know the EPA standards?

General GENEAGA. There is no one there that does not know the EPA standards.

Ms. NORTON. There certainly was in December.

General GENEAGA. That is correct.

Ms. NORTON. And we don't have a certification program in place yet. Do you know that the ones who are supervising now know?

General GENEAGA. I am confident that that is the case. Yes, ma'am.

Those disciplinary actions ran all the way from a letter of admonishment to several of the employees whose transgressions were significantly less, all the way on up to the most serious, which was both a suspension and a demotion, a suspension without pay for a period of time plus a demotion.

Those disciplinary actions have been taken and finalized within the last couple of months.

Ms. NORTON. Thank you very much.

I will turn to Mr. Horn at this time.

Mr. HORN. Thank you very much, Madam Chairman.

General, let me ask some very simple questions. I was not here at the first hearing, maybe they have all been gone over. When you talk about a sampling process, one of the things I imagine with your two basic water processing facilities, one of which was closed at the time of the incident, that you would be sampling the water that is going after processing into the distribution system.

Now, as I gather from the answer to one of the Chair's questions, you were also sampling at various points throughout the distribution system. In very simple English, how does that process work? How often are they to sample?

How large a sample is it? How is it processed? How many people have to be involved in order to process that sample and read the indicator and then presumably that alerts them to either do something or do nothing?

General GENEAGA. Yes, sir, there are two people involved who actually do the operation, plus another individual in a separate facil-

ity in Dalecarlia who monitors and runs the pumps, which pump the finished water, transmit it through the transmission system to the distribution systems owned by the respective customers.

There are three people at the McMillan facility, who, by the way the facility is configured, share those duties, so that is the number of people we are talking about that are concerned with, if you will, on a moment-by-moment basis of reading meters and taking appropriate actions.

Additionally, since December, I would add, we have added a supervisor to those shifts. We had supervisors prior to that time but they had duties in addition to directly supervising those individuals. Now that supervisor's sole responsibility is to supervise those individuals in the execution of their duties.

Mr. HORN. And that is 24-hour shift.

General GENEGA. That is correct, three shifts a day for a 24-hour period, yes, sir. Of course, the bulk of the work force that does many, many other duties, including the administration and the technical things to keep the plant running, of course, is on during the normal work day five days a week, and then as required, depending on what is happening there.

Mr. HORN. Well, what do they actually do now? Is this a random sample? Is this an hourly time sample? How often does that process go on?

General GENEGA. We have a number of tests and in fact in the course of a month, the number of tests, at for example a plant like Dalecarlia, numbers in the thousands. When we measured turbidity of raw water, for example, that reading is taken hourly. The readings on filters, on the turbidity coming off filters, is taken hourly. The cryptosporidium testing that we just began doing, that Mr. Laskowski mentioned, that we just started doing regularly is done once a month, and literally across the spectrum depending on, I guess it is fair to say, the risk associated with it.

EPA has set various standards for the frequency of testing and the type of testing to be done. We test monthly and quarterly, for example, in the raw water for certain types of metals and pesticides and report those results to EPA.

So it does run the gamut from the extreme, if you will, extreme high frequency being the hourly tests, all the way on up to monthly and quarterly tests which are used for different purposes.

Mr. HORN. Is there a desk manual that goes with each of those monitoring jobs, so they know specifically what to do and if one or both of them are ill there is some way the Corps or the operator of that plant can immediately send somebody in to go down the routine?

General GENEGA. There is now. What existed in December was inadequate, in our judgment and in the judgment of EPA. We have significantly tightened those procedures and then, in fact, added the supervisor, whose, again, sole focus on supervision is those operators and those operations, yes, sir.

Mr. HORN. At the once a month standard for determining metals coming from the source; namely, the Potomac River, that does not leave you much time to do something about it if that went through the system and out into the distribution system 29 days before. How do we deal with something like that?

General GENEVA. I would have to defer to EPA, but I believe the purpose of that test is not so much to judge the quality of the product water that we are placing into the distribution system, but rather to indicate to the EPA watershed conditions and watershed conditions across the country that might in fact lead them to specify future requirements for either treatment or standards of finished product.

Stan?

Mr. LASKOWSKI. That is accurate. The filters should take out any chryptosporidium, hopefully, in the system. Although, as the General indicated, we are still trying to get additional information throughout the country. And the reason we ask the Corps to get a jump-start on this and start taking these samples even now is we want to get background information. If, God forbid, something did happen similar to the December incident, we wanted to have background information as to how likely it is that chryptosporidium is in the raw water supply coming out of the river.

Mr. HORN. Let me ask you, do we have a sufficient reservoir supply where we are assured that this is properly treated, free of the more dangerous contaminants that cause some of these illnesses, diseases, where should you find something wrong in the inflow, you can immediately stop that from going through the system and release what you have in the reservoirs into the system?

Is there a way we deal with that? Do we often do that, where you have assured supply somewhere that are properly treated, are safe, met all the tests, that you can then pump into the system if you had some situation that caused what has concerned us here? How does that work?

General GENEVA. The reservoirs that we have contain about a 24-hour supply. That varies obviously depending on the time of the year and on water usages by the customers, but approximately a 24-hour supply.

A part of the capital improvements would allow us to bleed off, if you will, finished product rather than send it into the reservoirs. We do not have that capability at the moment.

Our thrust has been on this corrective action, and particularly on the Comprehensive Performance Evaluation and the proposals that we have in the capital improvements program, is to take the steps such that we have a couple of opportunities during the treatment process to make sure and significantly decrease the likelihood that we have a problem that we cannot deal with in the treatment process.

Mr. HORN. Let me just move to legislation for a minute. The Corps is I guess the oldest lobbyist that Congress has faced over two centuries, and it is always, I have found, been very knowledgeable as to who is doing what to whom up here.

I take it the Corps, the Army, fully support Mr. Moran's idea and Senator Warner's idea of a Federal financing bank from which you could draw funds, in the bond sense that a municipality can, to build these facilities, or has the Corps taken a position on that?

General GENEVA. We have, sir. We are very appreciative of the difficulty that the customers would have in meeting the present

pay-as-you-go up-front financing and we understand that very clearly.

My major concern is what I have not yet been able to resolve between OMB and the Congressional Budget Office which is a dispute as to how that scores, if you will, on my budget.

I am vitally concerned if the amount of money that we are talking about could reach \$400 or \$500 million in the next 10 years and if it were to be scored against my budget, there would be some very significant things that we would intend to do in the normal course of our program that we would be unable to do.

There is a dispute, as I understand it, between OMB and the Congressional Budget Office as to whether or not and in fact how that would score.

Certainly, I am supportive of the need to amortize those costs, since they are very, very significant costs and would have probably more significant impacts than could be borne by the water customers.

Mr. HORN. What is the OMB position?

General GENEGA. The OMB's position at this point, as I understand it, is that it would score on my budget.

Mr. HORN. Would score how much; when?

General GENEGA. In the——

Mr. HORN. In the four or five-year period.

General GENEGA. In the next five years, we are probably talking on the order of \$150 to \$200 million.

Mr. HORN. And the CBO's position?

General GENEGA. My understanding is the CBO position is the only part that would be reflected in my budget, would be the cost of that financing, that is the annual.

Mr. HORN. Annual appropriation to back it up?

General GENEGA. Yes, sir, to service that, if you will. And so that would be on the order of several millions of dollars. And I would find that proposal to be very reasonable.

Mr. HORN. We usually listen to CBO up here anyhow.

Last question goes back to when this crisis occurred. You probably went over it. Since a lot of the generals in the Corps of Engineers drink the same water we drink around here, did anybody just pick up the phone and say, what are you guys doing down there?

General GENEGA. Did anybody do that but me, sir?

Mr. HORN. Did the hierarchy of the Corps of Engineers just say, hey, what is going on, folks; either because they tasted it—I was not here then. I was back in California, as a good Representative should be in your home district, so I didn't go through this crisis. But, obviously, I worried about it, as one that is technically a fourth generation Washingtonian.

So did any general say to the people operating that plant, what are you guys doing; or you didn't know it was occurring?

General GENEGA. Yes, sir, I did, and I am sure they might describe what I said in that description as being kind. But, yes, we have taken a very hard look at it. I have personally spent a fair amount of energy since that time. I have spent a fair amount of time with the Honorable Togo West, Secretary of the Army, who feels a great deal of responsibility for the incident.

So I think in answer to your question, I will tell you that the senior leadership of the Army and the Army Corps of Engineers has spent a fair amount of time on ensuring all of what I have testified to today.

Mr. HORN. Thank you.

Ms. NORTON. Thank you very much, Mr. Horn. Actually, I thought Mr. Horn was going to ask both of you gentlemen if either of you used bottled water. I shall not require a response to that.

General GENEGA. I would happy to respond that I drink the water that is pumped into 20 Massachusetts Avenue, the Paluski Building, which comes from Dalecarlia, every day.

Ms. NORTON. Ms. Byrne.

Ms. BYRNE. Thank you. I just have a couple of short questions. Are we still keeping our log, our operating log in pencil?

General GENEGA. We have changed to ink, but, ma'am, there is no requirement across the country to use ink in those logs.

Ms. BYRNE. No, but you understand my concern about it, don't you?

General GENEGA. Well, ma'am, I am not sure I do. I guess the concern might be is that with pencil we could change a record. I guess that would be the concern. I have not spoken to you personally about it. Is that the concern, ma'am?

Ms. BYRNE. It is my concern. And given the situation surrounding the December incident, that you assured me at the last hearing, for example, that there was absolutely no shortage of alum. You sat there and assured me that there was no shortage of alum. Do you recall that?

General GENEGA. Yes, I do.

Ms. BYRNE. But that was not true, was it?

General GENEGA. It was true there was adequate alum. There was a problem with the contract, ma'am. We had gone to emergency contracting procedures and we did not have the usual stockage level, but we had adequate alum for the purpose at hand.

Normally, we require a higher, minimum stockage level. We never ran out of alum. So in that sense, if I misled you, I apologize. We were in fact below our minimum stockage levels but in fact we did have alum adequate for the task at hand.

Ms. BYRNE. Would that have some influence on the operator in not putting the chemicals in as quickly as possible knowing that you did not have a full supply?

General GENEGA. There has been no indication that that was the case from the operators.

Ms. BYRNE. Well, my point being that I am glad we have switched to ink.

General GENEGA. Well, I am also, ma'am.

I guess I would also add one other comment. There are two major issues here, one was the violation that we reported in September, and then the violation that we reported in December while we were using pencil entries and we self-reported both of those. So I appreciate your concern, and we have in fact changed to ink, but I think it is important to note that we in fact self-reported both of those violations.

Ms. BYRNE. Well, I understand that. It is just easier for things to get smudged and be less clear if we do not have them in a legible kind of medium like pen.

Ms. NORTON. Would the gentlewoman yield for a comment?

Ms. BYRNE. I yield to the Chair.

Ms. NORTON. There is an appearance problem. The gentlewoman is not impugning your integrity, but public records are not kept in pencil.

General GENEGA. Yes, ma'am, I understand they are now kept in ink, and some of the records, in fact now—and this will be in particular in the 1995–1996 time frame on the capital improvements program—there will be a continuous computer recording of those readings, in fact with the computer pen like device like an EKG or some such thing. So in fact we are moving in that direction even more so. It will not be done manually, even in ink, within the next couple of years by an individual, as is now the case.

Ms. NORTON. The appearance problem, I think, was the major problem there; not that anyone had made any allegation about how the records were kept.

General GENEGA. Yes, ma'am.

Ms. BYRNE. Thank you, Madam Chair, and I am glad to hear we are moving toward I guess what have been described as group discussions with the labor and employee problems that we have had at the plant.

Is there going to be some kind of follow-up? Are we going to go to some kind of conflict resolution, some kind of immediate creations between labor and management? Because, as you know, I had expressed serious concerns about personnel policies at Dalecarlia. I still have those concerns. I don't think that a few days of group discussions, I guess is what you call them, are really going to address the seed of the problem there. Are we going to continue with some kind of mediation there?

General GENEGA. Well, again, ma'am, if I represented that we only did two days, I apologize. We certainly started with that. We have continued ongoing efforts. The district commander has met down there quarterly. The Washington Aqueduct Division Chief is meeting monthly with employees who wish to come in. Additionally, General Chinen recently asked the commander of the Norfolk District, Colonel Perkins, to come in and conduct a walk-around look, and talk with people.

We have set up a Water Resources Council, where we have representatives from each of the functions to sit down and discuss with management, safety or management-related problems. We have taken all of the issues where we have made changes, for example, the job descriptions, the increased supervisors, and the certification program, and we have run those by the union representatives and have gotten concurrence with all of those.

So I think it is fair to say, ma'am, that we have a very proactive employee and management, including union and management relationship under way.

Ms. BYRNE. That is encouraging, thank you.

General GENEGA. Yes, ma'am.

Ms. BYRNE. Just one question for Mr. Laskowski. Sorry I butchered your name in the first place. I should know better.

On your on-site inspections, have you uncovered any potential problems in terms of toxins in dumping? I mean, are you aware of anything that has been happening at that plant that could be a potential problem in dumping or things that are going on there besides just the treatment of water?

Mr. LASKOWSKI. No, and you mentioned that last time and we talked about with our staff and we reviewed the Corps' records and we are not aware of anything. We found nothing there.

Ms. BYRNE. When we did the examination of the PCB, for PCB contamination, did we do a—was it a flyover examination? Because, as you know, if these have been in the ground for a long time they start to dissipate and only by looking from a higher level can you see the pattern that has been developed with the PCB? Was that the kind of investigation or was it just soil samples?

Mr. LASKOWSKI. I don't think it was a flyover that I am aware of. I don't think that was done.

Ms. BYRNE. OK.

General GENEGA. Ma'am, it included specific tests, sampling of soils and tests at those sites and all around those sites, in accordance with the rules we generally apply as to distances that things might have moved. That was done by an outside consultant.

Additionally, the commander did an internal investigation with the employees who had made those allegations to attempt to identify the specific actions and in specific locations at which those activities were alleged. Every one of those sites was so examined and we have provided copies of both that internal examination and the consultants's report to EPA and I believe to the subcommittee, ma'am. I will have to verify that, and if I have not done so, I would do so before the end of the day.

Ms. BYRNE. I would like that. I would like that. Thank you, General. No more questions.

[The information referred to is retained in Subcommittee's files.]

Ms. NORTON. Mr. Moran.

Mr. MORAN. Thank you, Madam Chairwoman.

I would begin by asking a question of Mr. Laskowski who is the representative of the Environmental Protection Agency.

There are two comparable communities right across the Potomac River. Both of them used to be part of the District of Columbia. They both are inhabited by some of the most wonderful people in the world in Alexandria and Arlington, and I happen to represent both of them. But there is a distinction between Arlington and Alexandria in their anxiety level about the water that they use.

Arlington is justifiably concerned about the quality of that water and yet Alexandria has never had a concern. The difference is the source, apparently. I would like to know if the Alexandria water supply has ever experienced something such as you described where you have had initial positive readings of E. coli bacteria six times in the last six months? Has that ever occurred with the water source, Mr. Laskowski, that Alexandria and other parts of Fairfax use, the Virginia American Water Company, which is a private corporation?

Mr. LASKOWSKI. I don't know, sir, but we could go back and try to get those records and respond to that, if you like.

Mr. MORAN. I would very much appreciate it. Because my understanding is that there has not been. And so while we are told that we can pretty well discount these findings from the Dalecarlia water supply, that they are not anything to be particularly concerned about, I think it is certainly fair to determine if that is comparable with other jurisdictions. We ought not pick on the Dalecarlia just because we happen to have greater visibility given to it, but if in fact it is not comparable to the supply that other jurisdictions just next door have available to them, then that ought to be made known.

Now, there is clearly a difference between the two organizations that supply the water. One is private and one is able to borrow over a long period of time. Although the rates keep going up, and they go up too high, the point is that they do not force us to pay exorbitant rates at the front end for substantial capital improvement costs.

That is not the case with the Army Corps of Engineers. And I want to determine the extent to which the users of the water supply for D.C., Arlington, and Falls Church are disadvantaged by the fact that the Army Corps of Engineers is responsible for their water supply and is not able to use a reasonable, responsible fiscal policy in terms of capital improvements. That may be the basic problem.

So it is not your fault individually, but there is some real fault if the Federal Government is enforcing a system that simply does not make sense and as a result the users of the water supply are paying a price for a policy that is irrational.

Now, I was interested to hear that you suggest, General Genega, that my upper limit of 300 million, and I just threw that in thinking that is a little exaggeration, gets a little attention, I thought certainly they will not come anywhere close to \$300 million, and you are correct to say 300 million may in fact be on the low side of the cost of the kind of modernization that this plant needs. That is of great concern, because if that is the case, then we are talking about local water rates going up through the ceiling to pay for that, if it has to be paid for on the front end instead of being able to finance in the ways that corporate utilities are able to finance. So it is going to make it politically unacceptable to do what is politically necessary.

And your comment that you cannot endorse this legislation that you desperately need because OMB refuses to take a rational attitude with regard to scoring, which there are only—I don't imagine most of the audience will know what we are talking about in scoring, but it is this arcane method of determining when the financing actually hits you, what fiscal year.

We were told, and this administration has been wonderful about trying to distinguish between expenditures and investments, but if OMB cannot understand the difference between this investment and the ordinary annual expenditures that are required for operating costs, then I am greatly disappointed. If that is the decision of OMB, that is a stupid decision, and I would hope that this will get back to the folks at OMB to understand that they need to take another look at this very quickly.

And the fact CBO is oftentimes intransigent on those sorts of things and understands this is something that clearly needs to be financed over a period of years, is all the more reason that OMB needs to take another look at this.

I just assumed that you were going to endorse this legislation, and if you have to be evasive about your support for this particular piece of legislation, we still have some real problems.

Now, General GENEGA, do you have any comment on that before I get going here?

General GENEGA. Yes, sir, I may not have been clear about it. My intent was not to be evasive by any stretch of the imagination. I fully understand your issue about the impact of that up-front financing and the significance of those dollars relative to what our typical budget is. Believe me, I understand that. Please be assured the Army Corps of Engineers will comply with that law, whatever that law is, whatever that law comes out—

Mr. MORAN. Well, that is being evasive. Mr. Horn asked you are you endorsing the legislation or not and you were just as evasive in answering him.

What is the answer, yes or no? You say you will support the law but everybody has to obey the law. That is not going to any great extent in support.

General GENEGA. At this point, sir, given my druthers and my professional judgment in my capacity, my comment would be no because of the impact on the Army Corps of Engineers' budget.

Mr. MORAN. OK. Now, you have told us that you need this and that you want this and in the same breath you are telling us that you cannot support it. Is that correct?

General GENEGA. Sir, I have told you that is what is necessary to achieve the state-of-the-art treatment facility at Dalecarlia and McMillan in accordance with the Malcolm Pirnie efforts, coordinated with EPA and the customers. That is necessary to achieve that end.

Mr. MORAN. Do you think that is a desirable end to achieve a state-of-the-art facility?

General GENEGA. Yes, sir, certainly for the Nation's capital.

Mr. MORAN. It is?

General GENEGA. Yes, sir.

Mr. MORAN. So you support that?

General GENEGA. Yes, sir.

Mr. MORAN. Do you see any other means of achieving that desirable end than this type of legislation which enables you to borrow the money up front?

General GENEGA. No, sir. I would hope that borrowing would be such it would not impact on other programs. But I agree with you, the impact on the customers to do it with up-front financing is probably fiscally not possible, politically undesirable but fiscally probably not possible. And so some sort of relief legislation, in fact, allowing an operation as the other water treatment facilities or utilities operate in this country would be entirely appropriate.

My concern is very narrow and is directed to a program I am charged with laying out the impacts for and that is my intention here.

Mr. MORAN. OK. Now I want to be absolutely clear on your answer. You said that this is a desirable goal with which you completely agree?

General GENEVA. Yes, sir.

Mr. MORAN. You also said that that is probably the only way to reach that desirable goal with which you agree; right?

General GENEVA. Yes, sir, we need a means to finance it otherwise.

Mr. MORAN. Now, we have those two points. But then your third point says, but I do not support it. And you say because of a narrow interest. Have you recommended strongly to OMB that they take another look at this? In other words, did you recommend to OMB that they accept this method of financing and endorse this legislation?

General GENEVA. Yes, sir, I did, and there are still ongoing discussions between OMB and the Congressional Budget Office as to how that is going to go on. I don't think it is a hard and fast line or wall, if you will, between OMB and CBO at this point. The discussions are ongoing.

Again, my intent, sir, is not to be evasive at all, but my intent is only to clearly make sure that the subcommittee and its Members understand the impact on other programs for which I have responsibility.

Mr. MORAN. Well, I understand the impact and we do not want to gut the Corps of Engineers' ability to carry out its other activities.

But would you agree, Madam Chairwoman, and Mr. Horn, that these discussions might be enhanced if they included the legislative branch?

Ms. NORTON. Let me just say, Mr. Moran, I couldn't agree more. The committee has a scoring bill that comes out of OMB's intransigence on the scoring issue. It is bad enough that the Federal Government does not have a capital budget, but when we require agencies to carry out capital improvements and score them as we score basic operations, we are at variance with every other sane entity in the United States of America.

So some of this does flow from the OMB decision and the bill is moving through committee and I think it will be necessary.

Mr. MORAN. I appreciate that comment at the end, too, that it is at variance with every other sane committee in the United States of America. That might be another way of saying it is a stupid policy as well. But I think a much more tactful way of saying that. So that needs to be changed.

We need the support of the Administration for this legislation and we need to get on the stick here and get this plant modernized. It is not fair for the residents of the District of Columbia or Arlington or Falls Church.

I do not see, and I agree with you, that there is any other way of achieving this objective than letting, enabling you to borrow the money long-term. It has to be done. Should have been done years ago. If it had been done years ago regardless of the personnel problems and so on, I do not think we would have had this situation, and I hope you will take that message back to OMB, and I am certainly going to talk to the people that deal with the Army Corps

of Engineers. I know this is a Public Works Committee, is very much on board here.

Madam Chairwoman, I have about three dozen elected officials from Prince William County and Manassas who want to talk, I suspect about Mickey Mouse and other things that are happening out there, that have been waiting since 10:30, so I will have to leave this hearing, but a couple of things that I had wanted to ask of the local officials is what impact it would in fact have on the water rates if the financing were done up front, and there is an additional subsidy cost, which is about 10 percent so that is another \$25 million that would have to be paid by the users of the water supply system. That ought to be addressed.

But one other point that I wanted to ask of Mr. Mallett, Madam Chairwoman, is that since the District has a \$58 million surplus in its water and sewer fund, if there is any possibility of borrowing from that fund to meet some of our infrastructure costs here? I do not know what would be entailed in using some of this surplus to finance capital improvements. It does seem to be a relevant source of money.

But that is something I wanted to ask of Mr. Mallett. I am sure you are familiar with it.

Ms. NORTON. Although, Mr. Moran, you will note, I am sure, and take the functional equivalent of judicial notice, that the words "District of Columbia" and "surplus" do not go together.

Mr. MORAN. No, no. I think that is a fair—there is a reserve, though, of \$58 million. Now it is probably IOUs, when you really get into it, but on the books it looks as though there is a surplus, but I agree there certainly seems to be an oxymoron there, D.C.-surplus. But that is something I just wanted to explore, and I suspect the Chairwoman will.

I appreciate the Corps of Engineers' concern about this. I wish you could have been able to be more forthright in your support of this very needed legislation which you agree has to be passed and is the only way to bring about the objective that we, on which we agree, and I would be interested to know, to see EPA's comparison of the water supplies for two very similar jurisdictions, side by side, both along the Potomac River, but getting different sources of water.

And I thank you very much for your indulgence, Madam Chairwoman and Mr. Horn.

Ms. NORTON. Mr. Horn.

Mr. HORN. Before the gentleman leaves, I think given the dilemma faced by the Corps of Engineers, with OMB saying we will hold against the Corps of Engineers' budget the expenditures for this needed work for the Nation's capital and the metropolitan area around it, I would think some creative financing by Congress, so we do not have all the Representatives of the 50 States voting against this, would be to create it within the District of Columbia government through the District of Columbia budget, not scored against the Corps of Engineers' budget, but with only the capacity to contract with the Corps of Engineers to see that the work is done, and get it out of anything to do with the Corps of Engineers in terms of basic financing.

But that would simply be a way to transfer the money ultimately to the Corps of Engineers to contract under that authority.

General GENEGA. Yes, sir, and if I might comment on that, that is the basis of the discussions ongoing right now with Corps' counsel. The customers have been involved, as well as the Corps, OMB and CBO. That is the basis to attempt to achieve that end.

Mr. HORN. Right. Because I want the Los Angeles River Flood Control Project to go through and the poison plume in the San Gabriel River to be taken care of, and I am willing to boil water if I have to in the District of Columbia to assure that.

Mr. MORAN. There are some conflicting concerns here based on parochial interests.

Mr. HORN. Let me ask two remaining questions, and maybe EPA is the expert on this, but, General, I would appreciate your comments, also.

I am told that in the previous hearing the question was to what degree can one, does one need to boil the water to be assured that it is bacteria free of whatever bacteria we are talking about at that time? And I am told the EPA said boil it one minute and some of the Virginia water authorities said boil it for 10 minutes.

Let me throw in as a person that has been a frequent visitor to India over the years, there you boil it 20 minutes if you want to really be sure.

Now, is there some sensible rule that we have asked the scientific community to come up with in these situations? Do we boil it 1, 10, or 20?

Mr. LASKOWSKI. Excuse me, I was just getting some expert advice here.

Mr. HORN. Sure.

Mr. LASKOWSKI. There was a problem last time, as you indicated, and I think we finally agreed upon one minute but I am not sure everyone was in complete agreement with that, so we have a group of folks together in the D.C. area that are trying to come up with one number that we can all agree to if we ever have to use it again.

Mr. HORN. But would you file it for the record? When do you think that decision will be made?

Mr. LASKOWSKI. By the end of the summer.

Mr. HORN. End of the summer. What is taking so long? Can't we just get one pot of water and boil it 20 minutes, one 10, and one for 1 and see what is the result of the test? Or do we need to contract for that one and have an RFP and all the rest?

Mr. LASKOWSKI. I suspect this group is working on other things too, and I suspect maybe this has not been the highest priority, but we will make sure it is available by the end of the summer.

Mr. HORN. I think we should know, because I think people are misled and misinformed if they think one minute of boiling will solve the problem. It will not for the kind of bacteria found in water systems everywhere but in the United States, and that includes Europe, which does not exactly have the safest water in the world.

Now, my last question. Could either of you comment on the costs and benefits of trihalomethane, the THM rule, and what will be the cost of increasingly stringent standards to get this worry out of the

system? And what are the increased public health benefits we will gain from that?

This question in specific comes out of a continuing concern of the Subcommittee on Water Resources and Environment, of which I am a Member, and Mr. Applegate is Chair, where every bit of testimony over this last year has showed that with increasing technology, we have a terrific capacity to find minute particles per not only per million, per tens of millions, per hundred billions, and all the rest of it, and then the question comes is, how safe is the water supply anywhere in America, because we can find some one part per billion? Is that really a worry? At what cost must we achieve that safety, and what is the probability of one really becoming ill or having cancer as a result of our technology, but maybe not in practice? What would you say on that subject?

Mr. LASKOWSKI. I don't have the specifics on any cost benefit analysis although perhaps our headquarters folks would and we could try to look for that. Let me end there. I just do not have that information.

Mr. HORN. Could you file it for the record?

Mr. LASKOWSKI. Yes.

Mr. HORN. General, do you have any comment?

General GENEGA. No, sir, we are—of course, a good portion of the Stage I or Phase I cost that we indicated, in excess of \$100 million, are, in part, on those more stringent standards. I am not technically qualified to separate them, but it is a sizable investment for that.

Mr. HORN. In other words, roughly, at Stages I and II we agreed are somewhere between \$300 million or \$325 million or so, ballpark estimate, and we do not know what your Stage III is yet.

General GENEGA. That is correct.

Mr. HORN. In terms of cost. And you are saying that roughly a third of Phases I and II are related to this need to meet a higher standard than we have had to meet in the past?

General GENEGA. Yes, sir, but that is very rough on-my-feet answer here. I would have to get a stubby pencil to look particularly at those facilities.

Mr. HORN. Thank you. If you could file something for the record in answer to this question we would appreciate it, too.

General GENEGA. All right, sir, we would be happy to.

[The information received follows:]

Hearing of June 20, 1994 before
House Committee on Public Works and Transportation
Subcommittee on Water Resources and Environment
on

Review of the Operation of Water Treatment Facilities for
the Metropolitan Washington Area

INSERT C
(additional information for record)

page 71, line 1631

The estimated range for the total costs of the first stage/priority improvements to the Washington Aqueduct water treatment facilities is \$74.3 to \$133.2 million. Of this total, the estimated costs of the improvements required to meet new Safe Drinking Water Act (SWDA) standards is \$16.9 to \$36.0 million, about 25 percent of the total. Those first stage/priority improvements to meet SWDA standards and their estimated costs are as follow:

<u>IMPROVEMENT</u>	<u>COST RANGE</u>
Alternative Treatment Methods - Process Testing, Studies and Pilot Plant	\$ 0.8 - \$ 1.7M
Flocculation Basins - Install Variable Speed Drives and Baffling	\$ 0.7 - \$ 1.6M
Dalecarlia Chemical Feed and Storage System Renovation	\$ 0.4 - \$ 0.9M
Water Quality Monitoring Improvements and Flow Instrumentation	\$ 0.3 - \$ 0.7M
Multi-Stage Rapid Mix Facility	\$ 9.0 - \$18.0M
Dalecarlia Chloramination Facility	\$ 1.1 - \$ 2.5M
Modification of McMillan Pumping Station and Construct Microstrainer	\$ 3.5 - \$ 8.0M
McMillan Chemical Feed and Storage Improvement	\$ 0.1 - \$ 0.3M
McMillan Water Quality Monitoring Improvements	\$ 0.1 - \$ 0.3M
McMillan Chloramination Facility	\$ 0.9 - \$ 2.0M
CUMULATIVE TOTAL	<u>\$16.9 - \$36.0M</u>

(cont.)

The estimated range for the total costs of the second stage/priority improvements to the Washington Aqueduct water treatment facilities is \$97.9 to \$203.2 million. Of this total, the estimated costs of the improvements needed to meet the next level of SDWA standards is \$81.2 to \$175.0 million, or about 85 percent of the total. Those second stage/priority improvements to meet expected SWDA standards and their estimated costs are as follow:

<u>IMPROVEMENT</u>	<u>COST RANGE</u>
Dalecarlia Ozonation Facility	\$ 45.0 - \$ 96.0M
GAC Filter Caps (Dalecarlia)	\$ 7.0 - \$ 15.0M
McMillan Ozonation Facility	\$ 25.0 - \$ 54.0M
GAC Filter Caps (McMillan)	\$ 4.2 - \$ 10.0M
CUMULATIVE TOTAL	<hr/> \$ 97.9 - \$175.0M

Ms. NORTON. Mr. Laskowski, although it is the Corps that operates the plants, the fact is that the boil water incident called into question your relationship with the Corps and your oversight of Corps' operations.

I would like you to explain your specific relationship with the Corps and what changes, if any, have been made in the quality and quantity of your oversight of the Corps at these plants.

Mr. LASKOWSKI. We typically work with the Corps of Engineers and other D.C. officials each year on a work plan, and that work plan contains things like training, for instance, and visits to the plant.

In the past, our folks from the Region III office visited the Corps of Engineers plants perhaps four to six times a year. We are now doing every, we are visiting twice a month, plus we have our headquarters' officials go over there occasionally also to review the operations of the plant.

We have greatly stepped up——

Ms. NORTON. But will you be doing that visiting twice—is that now standard operating procedures?

Mr. LASKOWSKI. It has been standard since December and for the foreseeable future we will continue that.

We are also working with the Corps in ways we have not worked before to provide operator qualification requirements, certification, if you will, for the operators and the Corps has worked with the American Board of Certification experts, and we are involved in those discussions.

So we are much more involved than we have been in the past, after this December incident.

We drew upon—with this incident and following the problem, we drew upon experts not only from our regional office but also from Washington, D.C., headquarters, from ORD in Cincinnati, a research and development lab, and also, as you know, from our Denver lab to do the investigation. And we continue to talk with these folks. So the level of activities and oversight I confidently say has gone up considerably on these plants.

General GENEGA. I would offer a comment, if I might, Ms. Norton, on that. We welcome that additional involvement. It has been very helpful to us. We look forward to it continuing. There is expertise and knowledge, of course, of what happens across the country that we just have access to in no other way. So it has been invaluable to us at this point and we welcome it continuing, as Mr. Laskowski indicated.

Ms. NORTON. Mr. Laskowski, were there things that might have been done in your previous oversight that might have at least mitigated, if not eliminated, the boil water incident?

Mr. LASKOWSKI. I think it is our feeling that with our previous visits down there, and recalling there had not been a situation like this in many years, we really did not see that coming and perhaps there are other things to look for.

Ms. NORTON. I have in mind things like the operations manuals—the fact they are operating off of these old manuals. It would seem to me that routinely one would look and see if they had guidelines, if they followed your standards, because they were written down someplace. That was what was shocking to the committee

and made it appear as if there was not indeed oversight, continuing oversight or deep oversight, of the Corps. Nobody seemed to have pulled their skirts on the most obvious things—the things that are easiest to find.

You do not even have written down what you should do in the case of an emergency. Why had that not been done?

Mr. LASKOWSKI. I don't know. I don't know why we missed that. Typically, we look at the plant records when we go in, we consult with the plant operators, and prior to December, we felt things were operating well, and although we did continue to have our annual plan together for increased training and we were working with the Corps of Engineers even at that time for a Comprehensive Performance Evaluation, so it wasn't as if everything was perfect in our mind, but we did not anticipate this problem.

Ms. NORTON. Do you look at staff training and staff competence when you monitor the Corps?

Mr. LASKOWSKI. We look at—

Ms. NORTON. Did you look at it then and do you look at it now? I suppose it's a two-part question.

Mr. LASKOWSKI. I believe the answer to both questions is yes. And, in fact, in our annual work plans, even before the incident, we were addressing situations like training, how to provide additional training to the operators and to work with the Corps to get that training. We have stepped that up and are looking much more closely and talking about actual certification now at this point, which we did not have before.

Ms. NORTON. What the committee has before it are four different investigations. I would like to know the differences in the scope of these investigations and any differences in their findings. Which investigations were deepest, for example?

General GENEGA. I think I can cover that, ma'am. Perhaps all of them were deep in their own way, but all looked at slightly different things. The commander's internal investigation in the short-term looked at the causes of the incident, the situation leading up to that incident, the actual incident itself, and then the steps that we took in the immediate few days after.

The Comprehensive Performance Evaluation by Malcolm Pirnie for which we contracted was an attempt to look at the incident but look totally at our operations in that plant with a view towards recommending any improvements that might be made.

The commander's investigation, for example, did not look at the whole operation as he did not have the technically qualified people to do that. The EPA review looked at specifically the causes of the incident and things that we might do to preclude a recurrence.

Again, kind of like the commander's investigation, but, at the same time, with far more technically qualified people. So in that sense perhaps a little deeper in the sense of technical qualifications.

The last one was the peer review, which was the folks from Newport News who came up and did a relatively short-term look at the operations. Not so much at the incident itself, but walking around the plant with our people, looking at what we did and how we did it, and making some recommendations for improvements. So each was deep in its own unique way, ma'am.

With regard to the findings, I would call them complementary. There was some repetition in the findings of each, as you might expect, given those areas that they looked at, and in fact there was some uniqueness, in that, for example, the Malcolm Pirnie report recommended some things that no one else recommended, likewise, the others. But I would call them complementary and perhaps most importantly, nowhere were they at odds. Nowhere did one party say one ought to do "A" and the other party say one ought not to do "A."

So I would consider them quite complementary. I think that addresses your question.

Ms. NORTON. Yes, it does. It is important for us to know whether there were any substantial differences that would give rise to concern.

Now, the Malcolm Pirnie report had, as I recall it, 33 recommendations. Do you intend to implement each of these recommendations?

General GENEGA. Yes, ma'am, we do. We have, in fact, implemented about a dozen of them already. We have an action plan, which we have submitted to EPA. For the others, several are under way, and then the remainder are part of the capital improvement plan, which of course will occur in succeeding years. But the answer to your question is our intention, in accordance with the action plan that we have submitted to EPA, is to fully implement each of those 33 recommendations.

Ms. NORTON. When you appeared last time, you thought that the reason for the incidents was human error. So the committee has been particularly concerned about these people problems. The EPA report found that there was poor communication between the on-line operations staff and the management staff.

What changes have been made to improve communication among levels of employees?

General GENEGA. We have changed the procedures, as we mentioned, for example, requiring a face-to-face review of the situation between shift operators and the supervisor and then supervisors of succeeding shifts. So that is a requirement which is occurring at each shift change to preclude the kind of communication problems, for example, that led to, or certainly contributed to the incident back in December.

That is one, for example. But basically, we have changed the procedures such that there is tighter management oversight, tighter procedures with more reviews in place, such that should there be any indication of a problem, senior management would have that indication far earlier than was previously the case.

Ms. NORTON. Finally, Mr. Horn and I have both had some professional involvement in civil rights work, and here we see that there were at least some allegations of EEO concerns as a part of this incident. And once these kinds of allegations take root, it is very hard to convince those who believe they were there that they in fact were not there or that they are not there anymore, such is the nature of race and gender in our country.

Now, the finding was made by the EEO office that the issues raised were management-related and not EEO-related. What was the basis for that determination?

General GENEGA. The basis——

Ms. NORTON. What were the alleged issues and what were the management issues that they said were the real issues?

General GENEGA. I think the alleged issues, ma'am, or the indications that senior management had was that people were dissatisfied, although they did not understand why they were dissatisfied. The investigation, which was conducted by one of the EEO specialists with 18 years of EEO experience on Colonel Capka's staff, which included those sessions that I described where 75 employees were present, those repetitive sessions, walking around and talking to the employees individually and getting their feedback, resulted in that EEO specialist's conclusions that they were in fact not EEO based but rather management.

For example, employees in that process complained—we have a procedure whereby the government buys safety shoes for those people who are, that is steel-toed shoes/boots, those people that are involved somewhere where something might fall on their feet and damage their toes. The complaint was that we had limited people to a number of styles out of the GSA catalogue. That limitation was in fact a dollar limitation.

We have changed the procedure such that if someone would like to be a little more stylish, perhaps, in safety-toed shoes, the government will contribute up to a certain dollar amount. And if that individual employee wants to go beyond that, as long as they were certified safety shoes.

So that was in the category of an annoyance, if you will, for some employees, and one that was easily solved by management once we got there and found out what it was.

Those were the kinds of complaints that Ms. West came up with and the commander came up with in his investigation. And, again, each of those are addressed. So that is what led us to believe they were in fact not EEO based.

Ms. NORTON. How did you choose the 75 employees to participate in these sessions?

General GENEGA. We did not choose them, ma'am. All the employees were encouraged to come. They understood what the purpose was of the gatherings. I say 75 employees participated. Some participated repetitively, some did not participate repetitively. But, again, it was totally voluntary on their part.

Additionally, there were other sessions held with all 30 supervisors. That number 75 does not include the 30 supervisors who participated in those sessions also with Ms. West and the commander.

Ms. NORTON. And are there ongoing sessions? Will there be additional sessions?

General GENEGA. Yes, ma'am, there are. And, additionally, as I mentioned previously, Colonel Perkins, the commander of the Norfolk District, who is very experienced, and—a very mature and experienced officer, with great judgment and experience, has also been utilized by General Chinen to do these sessions with employees and then walk around and talk to employees. And he is in the process of gathering his findings at the moment. So, yes, they are continuing and we intend to continue them in the future.

Ms. NORTON. Well, I cannot encourage enough of these sessions. When there are diverse people working together and problems unrelated to race come up, the first thing often that people look to are the races of the people involved and conclude that race or gender is in fact involved. And the workplace is completely messed up, completely messed up with what amounts to a management problem of not talking out issues so that people move beyond the obvious to the real problems. And you clearly had that problem there.

My office and other offices received such allegations. It is difficult to prove discrimination. It is far easier to eliminate suspicions and fears if there is ongoing communication with employees so that the fears do not take on a racial cast that is, once it is there, very hard to get rid of.

I want to thank both of you for coming, for the work you have done. I think the work has indeed encouraged us to believe that the appropriate actions are being taken. I do want to put you on notice that we think part of the problems reside with those of us who have oversight. I will be encouraging the District of Columbia in its budget process to do oversight that is related to its budget, which can involve some of these issues, and I will encourage the committee to, in fact, do the kind of oversight that might help the Corps and the EPA to effectively perform their duties.

Thank you very much.

General GENEGA. Thank you ma'am.

Mr. LASKOWSKI. Thank you.

Ms. NORTON. Could I ask the next panel to come forward? Mr. Robert Mallett, City Administrator and Deputy Mayor for Operations from the District of Columbia; Mary Margaret Whipple, Chair of the Arlington County Board; Robert Perry, a member of the city council of Falls Church.

I note some of you have been here for sometime, and I apologize for the time it has taken us to get through our questions, but we felt it absolutely necessary to nail down for the record that the problems that were associated with the Dalecarlia alert have absolutely and forever been eliminated, and that required putting them on record.

I appreciate your coming and your patience with the committee. Mr. Mallett, did you want to begin?

TESTIMONY OF ROBERT L. MALLETT, CITY ADMINISTRATOR AND DEPUTY MAYOR FOR OPERATIONS, GOVERNMENT OF THE DISTRICT OF COLUMBIA AND PRESIDENT, METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS; MARY MARGARET WHIPPLE, CHAIR, ARLINGTON COUNTY BOARD, ARLINGTON, VA; ROBERT R. PERRY, MEMBER, FALLS CHURCH CITY COUNCIL, FALLS CHURCH, VA

Mr. MALLETT. Good morning, Mrs. North, Mr. Horn. I am Robert Mallett. I am the City Administrator and Deputy Mayor for the District of Columbia. I am also here in my capacity as the President of the Metropolitan Washington Council of Governments and on behalf of the residents of Washington, D.C., and the governments in the region.

We would like to thank you, especially you Mrs. North, for being so vigilant in this exercise with respect to water quality in our Nation's capital and some of its neighbors.

We are extremely grateful because there is no oversight vehicle, as you have observed repeatedly, for water quality issues with respect to the Corps of Engineers. I would like to say, however, that since the December incident, we can report excellent cooperation between the local jurisdictions and the Corps of Engineers and the Environmental Protection Agency. All of the reports, the Pirnie reports, the EPA investigation, the peer review, and the commander's incident report have all been extremely helpful in forming our dialogue.

We would also like to state for the record, at least for the District of Columbia, and I believe I can speak for the affected jurisdictions, that we do support the Moran legislation. We have had a recent meeting of COG to examine that legislation, and we are supportive of it and would like to see its speedy passage.

Finally, we, in recognition of the problems that we had in December with respect to notification, we have put together a regional committee and we are drafting an interim, we have already drafted an interim emergency notification agreement, and we are dealing with other issues as well in this steering committee surrounding the incident. I chair that committee. It is cochaired—the vice chair of that committee is Al Morris of the Environmental Protection Agency.

I have generally summarized the statement that I will submit for the record, Mrs. North, and that is all I have to say now.

Ms. NORTON. Thank you very much, Mr. Mallett.

Ms. Whipple.

Ms. WHIPPLE. Thank you very much.

Good morning, Madam Chairman and Congressman Horn. Thank you very much for having us here today. I don't know if I can do as good a job as Mr. Mallett did in summarizing the events, but I think I will try to do that. My testimony has been submitted for the record.

Obviously, the primary concern of Arlington County is to ensure that water quality standards are met and water quality and public health is protected in the future. At the same time, we are very concerned about the impact of financing these public improvements in a short-term period; that that could result in an intolerable burden on Arlington citizens and businesses to pay the bill over a short period of time.

The county and almost any government finances its capital improvements over the period of time of the useful life of those improvements on a 20-year, 30-year basis, and that spreads the cost out so that they are paid by the users who benefit from those changes over that period of time. So we are most concerned that a financing mechanism be available that would amortize these costs over a period of time.

I guess I do not exactly care who gets scored with it. I hope that that can be worked out so that it is done in some kind of fair way so that it does not have negative impacts on either the Corps of Engineers or the District of Columbia government, but we would be most anxious that it not be borne over a short period of time by

the citizens and businesses of our communities who will ultimately have to bear those costs.

We had one other issue that we just wanted to bring to your attention, which relates to an issue that was raised earlier today by Congressman Horn. The question of this very high standards issue, how much do you improve quality and at what cost and what is the cost benefit analysis? And one issue that has come to our attention recently or at least to my attention recently is that currently the sedimentation from the water plant goes back to the Potomac.

It has been studied and has been determined in simple terms to be clean, a clean discharge, and yet apparently EPA is going to require that some other provision be made for the disposition of this sedimentation.

It is unclear to me what benefit would come from that if the discharge in fact is clean, then what is the benefit of doing it in some other way, and we are talking about a \$50 to \$55 million expenditure for that alone. At least at first I would prefer we work on good water quality and spend our funds in that way.

So that is just an additional issue that I would like to bring to your attention. Currently, of course, our most important issue is that of figuring out a financing mechanism so that the costs of the necessary improvements can be amortized.

Thank you, Madam Chairman.

Ms. NORTON. Thank you very much, Ms. Whipple.

Mr. PERRY. Thank you, Mrs. Norton, Members of the subcommittee. It is a pleasure to be here and to have an opportunity to testify before you. I am here to represent the city of Falls Church. I am Robert Perry, a member of the City Council and a member of the council's utility committee.

I am an environmental engineer by profession and was employed by the District of Columbia for 11 years. During that period of time, I was employed by the Blue Plains Wastewater Treatment Plant.

During a portion of that time, I was in charge of the Blue Plains Wastewater Treatment Plant. Although the population of the City of Falls Church is only 9,600, our water system serves a population of 120,000 in the city and in Fairfax County covering an area of 33 square miles.

I have submitted my statement to the committee so I will summarize and briefly touch on a few things of special concern to the citizens of Falls Church.

One, we certainly agree with the statements that have been made on the funding problem and we support the legislation that has been submitted by Senator Warner and Congressman Moran. There has been considerable discussion on that issue, and we in Falls Church support efforts being made to relieve the present situation.

A question was asked earlier about what this might do to our rates if we can't get this legislation through, if we still must provide the money upfront. A quick estimate of this—and I have not been through the calculations—but a quick estimate is that it might double our rates in the City of Falls Church. It seems to me there is no reason why this financing can't be done as proposed by the legislation.

The users are still going to pay for this, but it is forcing us to pay for it upfront.

The second issue I want to deal with just quickly—the Representative of Arlington touched upon it—and that is the matter of solids disposal from Dalecarlia.

As I said, I worked for the District of Columbia at one time. I left in 1975, so it was 1972, 1973 that we had discussions with the Corps about the disposal of solids from Dalecarlia because then it appeared it was only a matter of time until they were going to be stopped from dumping this material into the Potomac.

This is the rule of EPA taking effect all over the country that this discharge from water treatment plants has to be stopped. It seemed to me at that time—and this was part of the discussions—that these solids could be sent directly to Blue Plains and could be part of that treatment process. It would be a small addition to the treatment, to the amount of material coming into Blue Plains.

Our calculations at that time indicated that this waste could be handled at Blue Plains with little additional cost. The main thing is that you would not have all this capital cost of a treatment process at Dalecarlia; \$55 million they are talking about for the cost of that.

I understand that nothing further has been done on this proposal in 20 years; nothing further has been done to investigate the feasibility of this proposal. I would like to see someone, one of the consulting engineering firms take a look at that and if someone can say to me this cannot be done because of so-and-so, I will accept that; but no one has said that yet. I think that is important for the Corps to look into that possibility.

Thank you very much, Madam Chair.

Ms. NORTON. Thank you Mr. Perry.

The committee will inquire of the Corps concerning that possibility.

Mr. Perry has testified that he thought the cost to users would double were the capital costs to be scored in the way we score operations. I wonder if either Mr. Mallett or Ms. Whipple has a sense of what the impact would be on users if we scored this to pay for it on a pay-as-you-go basis.

Mr. MALLETT. From the point of view of the District of Columbia, depending on what the upfront costs would be, we estimate from a doubling to a tripling of rates for our customers.

Ms. WHIPPLE. We have not computed that. I was not—I had not thought it would be that much, but it is certainly sizable.

Ms. NORTON. I am not sure if Mr. Horn's idea is capable of implementation anyway. Do you have a response to Mr. Horn's idea of, in essence, delegating this matter, with all of the parties picking up their respective parts of the obligation rather than going through the Federal process.

Ms. WHIPPLE. I think it would be preferable to figure out how to score it. I think our initial looks at other types of financing would mean that bonds would have to be taxable, that they would not get the high rating that they would get otherwise, that we would have to finance it through revenue bonds that would be secured by the water customers paying.

In that case, they are taxable bonds—Arlington is a double/triple A jurisdiction and we are used to getting very good rates, but we are using our own financing authority to do improvements on our wastewater treatment plant, a very sizable expenditure, and we have had a number of bond issues over the last several years to finance that as well as all the other capital needs of a community.

We have to be very careful about assuring that the debt that a local community undertakes is within their debt capacity.

Ms. NORTON. I yield on this question to Mr. Horn.

Mr. HORN. You raised a very interesting point, Ms. Whipple. Obviously when you think about it—and that was off the top of my head because we are used to appropriating funds never enough to the District of Columbia Government, but we are talking about a metropolitan area. We could set up what most States would do in a metropolitan area, a special district with the authority to use Federal bonding capacity.

Maybe for those of you that can issue bonds that might work out a proportionate cost of the project, you could issue your own bonds, or if you didn't have that legal capacity already, they could draw on the Federal Treasury at their tax-exempt status and their interest rates.

The arrangement would be the Corps of Engineers still operates the facility, but it would be just a financial device. We do this in California; when we established the headquarters of the California State University system, a special bonding authority is created. Certain members are appointed with the—by the governor with the responsibility to carry out those tasks or the board of trustees, whatever the State's entity is, and it works out.

They retire the bonds over a particular period by annual payments from the using entities.

Ms. WHIPPLE. I am sure that there are a number of mechanisms that could be investigated. It sounds to me that most of those would be more time consuming to set up and more complicated than the Federal issue.

Ms. NORTON. That is because you are not privy to the fights we have had on the scoring issue.

Ms. WHIPPLE. That is probably true.

Ms. NORTON. The last administration had the same position on scoring as this administration and has gotten the committee into a real dither because it has the same effect on our own budget as it has on the Corps' budget; so that we are forced into bending methods that are actually unprofessional and unheard of and adds to the deficit and to the cost to taxpayers.

So that even though we may get this bill through—because I think in the Congress there is an understanding that there is something very irrational going on here—and we are going to meet an administration that will have some difficulty with it. It leads us to try to think of other things that we could do in the interim.

I recognize that nobody here could respond technically to all the problems that are presented, but I think it is worth exploring in any case.

There were also problems raised, if you recall, about the distribution system, which is under the jurisdiction of the respective jurisdictions. I wonder if any actions have been taken to improve the

integrity of that system to remedy, for example, the pipeline rupture problems that were experienced in December?

Mr. MALLETT. The pipeline rupture problems occurred throughout the region in December and January because of the very severe cold. We have certainly, at least for the District of Columbia, been taking appropriate steps to do maintenance and repair and we from time to time were able to initiate a project to make certain that we keep improving upon our distribution system.

It is clear, however, that to do the kind of massive improvement of distribution systems across jurisdictional lines entails an extraordinary cost; so we are sort of moving along, I think a little slower than what our finances—a little slower than what we would like due in large part to our ability to do the financing for these capital costs.

Ms. NORTON. These are very old systems. What I would like to see us do is first take stock and I will try to do this within the committee to take stock of where we are on the scoring problem and what would happen if we passed the bill, which has gone through subcommittee and may even have passed the full committee, but certainly would pass at the full committee level.

If we find after taking the pulse of that bill that there are terrible problems, and we are usually able to work with the administration to get some kind of understanding, then I would like to explore with the jurisdictions what could be done considering that we are dealing with one of the oldest distribution systems in the country and that I know for a fact that what you say about the ability of the jurisdictions, different as they are to themselves, to fund this matter is absolutely true, so I think what we ought to do is look at these alternatives and I would be pleased to work with all of you in that regard to see if we could move this along and not let it stop here at the talking stage.

Mr. PERRY. It is important to keep in mind that the maintenance and the replacement as necessary to our distribution system is as important as taking care of our water supply.

Ms. NORTON. That is absolutely the case and because this problem arose in the water supply, I am afraid that problem is not well understood except by the various jurisdictions who know how old it is.

We could have a very serious breakdown and no amount of caution in the water supply could not protect it if we do not move more quickly.

I heard on the radio this morning the amount that it would save the government if it had only maintained roads instead of simply building them when they rot underneath us.

What has happened with other water distribution systems is it is slowly rotting underneath us and something is going to happen some day, and it is going to make the boil water incident look like a picnic. We have to move on that before that happens.

I know that all of you were concerned as well with the notification system about the crisis because there was a defect there as well and the various jurisdictions rallied heroically to meet that deficit. Would you comment on the status and the nature of the COG effort to formulate a regional drinking water emergency plan in case such a matter arises again?

Mr. MALLETT. We have, I think, had excellent cooperation through the steering committee that we have set up at COG on revising the notification system. We have the assistance of the Corps, the EPA, and all jurisdictions in putting together at least an interim emergency plan.

Initially, we ran into some difficulty. I think there was some turf fighting. But we were able quickly to come to deal with that issue and we have in place an interim notification plan that we would put into effect if an incident happened today.

Ms. WHIPPLE. I would like to thank Mr. Mallett for his leadership in these efforts to get a good communication mechanism up. We feel that it is a substantial improvement.

Ms. NORTON. Thank you.

I would appreciate having that for the record.

[The information received follows:]

ATT. A
DWEA-SC
7/13/94

Interim Notification Plan for a Drinking Water Emergency at the Washington Aqueduct Division

Proposed changes as of 7/1/94

** In final version, names and phone numbers will be removed and included in an attachment **

Note: Parties key to the decision-making process are indicated with a "●";
whereas parties to be notified are indicated with a "○".

NARRATIVE

I. DETECT EVENT

Step 1. WA Detects Event

The Washington Aqueduct (WA), (202) 282-2700, identifies an "event" at the Dalecarlia and/or McMillan water treatment plants. For the purpose of this plan, an "event" is something that could affect the potability of the drinking water provided to the aqueduct's wholesale customers. An event may or may not be a violation of a regulatory standard (see Attachment A). Further screening and consultation will determine whether the event constitutes an emergency that affects public health.

Step 2. WA Reports Event to EPA

Washington Aqueduct will report the event to EPA Region III:

- 24-hour contact number: 1-800/352-1973 x79898

In addition to phone contacts, EPA and WA have established communications by FAX and express mail. Contacts for these links are:

- Al Morris, Director, Water Management Division, 215/597-8227
- Jeff Hass, Chief, Drinking Water Section, 215/597-9873
- George Rizzo, Specialist, Drinking Water Section, 215/597-0609

Step 3. WA Reports Event to Wholesale Customers

Immediately following the report to EPA, Washington Aqueduct will report the event to its wholesale customers: the District of Columbia, Arlington County and the City of Falls Church. WA will use the following 24-hour contact numbers:

- D.C. Office of Emergency Preparedness (DC/OEP), 202/727-6161.
- Arlington Dept. of Public Works (Arl/DPW), 703/358-6555.
- Falls Church Dept. of Public Utilities (FC/DPU), 703/241-5044.

(Duty officers will answer these phones.)

The wholesale customers will notify appropriate officials, including the Chief Administrative Officers (CAOs), within their own governments according to their own procedures. This notification will stress that the event is under review and that further notice will be given if an emergency actually exists. The wholesale customers also will notify several additional parties:

DC/OEP will notify:

- the Pentagon, 703/697-1001.
- Washington National Airport, 703/685-8210.
- Washington Suburban Sanitary Commission 301/206-8861.

III. CONDUCT INTERNAL NOTIFICATION

Step 58. EPA Notifies CAOs

If there is a health emergency, EPA Region III will immediately inform CAOs in the affected area (D.C., Arlington, Falls Church, Fairfax) and in those neighboring areas (Alexandria, Montgomery, Prince George's) where confusion might exist about who is affected and where major segments of the population may work or engage in other activity in the affected area. Contacts are:

● D.C. Deputy Mayor's Office,	202/727-6053	(Robert Mallett).
● Arlington County Manager's Office,	703/358-3120	(Anton Gardner).
● Falls Church City Manager's Office,	703/241-5004	(David Lasso).
● Alexandria City Manager's Office,	703/838-4300	(Vola Lawson).
● Fairfax County Executive's Office,	703/324-2531	(William Leidinger).
● Vienna Town Manager's Office,	703/255-6370	(John Schoeberlein).
● Prince George's Chief Administrative Off.,	301/952-4757	(Major Riddick).
● Montgomery Chief Administrative Office,	301/217-2500	(Gene Lynch).

EPA Region III also will notify:

- the COG Executive Director's Office, 202/962-3210 (Ruth Crone).
- the Washington Aqueduct Division, which, in turn, will notify its customers under the procedure outlined in Step 3.

To determine when the emergency has ended, EPA Region III and state/local health officials will continue to monitor conditions at the Washington Aqueduct. **The CAOs are urged to consult with their Public Information Officers (PIOs) on the status of the emergency.**

Step 69. CAOs Coordinate Response

After direct notification, EPA Region III will initiate a conference call of the CAOs and the COG official listed in Step 58 using the DC/OEP teleconferencing system. The CAOs will coordinate an initial response to the emergency based on background information provided by EPA Region III and state/local health officials. **After consultation with the PIOs, decisions on centralized/decentralized press briefings, information centers, operations centers, and guidance to the public will be coordinated per the PIOs Public Response Plan (Attachment C).**

Step 740. CAOs Report Decision to Elected Officials

The CAOs will inform local and state elected officials of the decisions that have been taken and the background of the emergency. EPA Region III will notify federal officials and congressional representatives.

CONDUCT PUBLIC NOTIFICATION

Step 844. CAOs Notify DC/OEP to Report Decision over WAWAS

The CAOs will contact DC/OEP to activate the Washington Area Warning System (WAWAS) to notify all local governments in the region of the nature of the emergency and the decisions that have been taken.

Ms. NORTON. Mr. Horn.

Mr. HORN. I have no questions. You answered it with your opening statement and just now, my one question would be the degree of cooperation and everybody seems quite satisfied.

Mr. MALLETT. I would like to put on the record one issue that was a dialogue about discussions about alternative financing methods. It may well be that the District of Columbia is involved in some of those discussions.

Some of the ideas that may have been mentioned, I have not been made aware of them and we would like to have an opportunity to consult with the Corps about any financing methods that are being discussed, because we are already very close to our debt ceiling in the District of Columbia, so we would be particularly concerned about that.

Ms. NORTON. We certainly would not move without the District of Columbia being totally on board with that.

Mr. Mallett, I have one more question for you having to do with Region III's conclusion that the District of Columbia is ineligible to have primacy under the Safe Drinking Water Act.

As I understand, EPA sent the District of Columbia a letter earlier in the month expressing the position that the District of Columbia cannot have primacy because the Home Rule Act precludes D.C. from controlling the Washington Aqueduct system.

Since D.C. owns and operates the distribution system, it could not regulate itself as I understand the contents of that letter. I am not sure of what D.C.'s reaction to the EPA position is, but I recall that in 1977, the District of Columbia took a position that it could have primacy since the Safe Drinking Water Act specifically included the District within the definition of a State.

Are you aware of this pending issue?

Mr. MALLETT. I was apprised of this at 11:30 last night, so I do not know the contents of the EPA letter. It is being forwarded to my office. It is an issue which I would like to get back to your office on.

Ms. NORTON. That is fine.

Ms. WHIPPLE. You mentioned and we discussed the issue of cooperation and communication among the jurisdictions and with the Corps of Engineers. One thing we do like about the legislation that has been introduced by Senator Warner and Congressman Moran is that it also provides for some continuing linkages between the local jurisdictions and the Corps in the operation and management of the plant and the capital improvement program.

So in addition to the financing mechanisms, it does supply a way for us, the jurisdictions, to continue to be involved in the process.

Ms. NORTON. Certainly that is an appropriate and salutary feature that we will keep mind of.

We will put the EPA letter in the record.

[The information received follows:]



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107-4431

50075
RECEIVED

JUN 3 4 07 PM '94

ADMINISTRATOR'S OFFICE

MAY 3 1994

Ms. Ferial Bishop, Administrator
Environmental Regulation Administration
Department of Consumer & Regulatory Affairs
2100 Martin Luther King Jr. Ave., S.E.
Washington, D.C. 20020

Dear Ms. Bishop: *Frial*

As I mentioned at our recent meeting, staff from our Office of Regional Counsel and my Division have been looking into the question of whether or not the District of Columbia can be given primary enforcement authority (primacy) for the Public Water System Supervision (PWSS) program. The last time the issue was researched was in 1977. For your information, I am enclosing some of the correspondence between the District of Columbia and our Agency that was exchanged at that time.

Under the Safe Drinking Water Act and its implementing regulations the District of Columbia is included in the definition of a State and thus would be eligible to be considered for primacy. In order to receive primacy, however, the District would be required to demonstrate that it can satisfy the primacy criteria contained in 40 CFR 142.10.

While I am confident the District could satisfy most of the criteria referenced above, I am concerned that the District would still be unable to demonstrate that it can regulate all public water systems in the District, or take appropriate enforcement actions to enjoin any threatened or continuing violation of the primary drinking water regulations (40 CFR 142.10(b)(6)(i) & (ii)). Specifically, under the District of Columbia Self Government and Governmental Reorganization Act of 1973 (P.L. 93-198) the District is limited in its ability to regulate the Washington Aqueduct (Section 602(b)). That fact, coupled with the inherent problems of one Department of the District regulating another Department, are the two main obstacles preventing us from awarding primacy to the District, as they were in 1977. If the District believes those two items are no longer the obstacles to primacy that we identified in 1977, the District should submit information to us showing why they are not.

You also raised a question regarding the eligibility of the District to receive a portion of the PWSS grant funds, allotted to us for direct implementation of the PWSS program in the District, for your Department to use in ensuring the safety of the District's drinking water. Without the District having primary enforcement authority, we are extremely limited in the

activities that we can reimburse the District for performing. Section 1442(b)(3) gives us the authority to make grants to non-primacy organizations for the purposes of training and expanding the capabilities of a State to carry out the non-PWSS responsibilities of the SDWA. We have identified two activities, implementing the Lead Contamination Control Act (LCCA), and ensuring that new construction is in compliance with the Lead Ban provisions of the SDWA, as potential areas where we may be able to enter into a grant agreement with the District.

I am enclosing a copy of the Lead Contamination Control Act (LCCA) for your information and if you have any questions regarding the primacy issue or our grant proposals, please address them to Jeffrey Hass, Chief of the Drinking Water Section. Mr. Hass can be contacted by telephone at 215-597-9873.

Sincerely,



Alvin R. Morris, Director
Water Management Division

Enclosures

cc: S. Kersner (3WM40)
J. Hass (3WM41)
G. Rizzo (3WM41)
M. Mulkey (3RC00)
R. Smolski (3RC12)
R. Sarajian (3RC12)

GOVERNMENT OF THE DISTRICT OF COLUMBIA

OFFICE OF THE CORPORATION COUNSEL

1977 FEB -3 PM 12:37 DISTRICT BUILDING
WASHINGTON 4. D. C.



SA:JCS:jld

February 1, 1977

Thomas Larson, Esquire
Environmental Protection Agency
Room 505 East Tower
401 M Street, S. W.
Washington, D. C. 20460

Re: Acceptance of primacy by the District of
Columbia pursuant to the Safe Drinking
Water Act

Dear Mr. Larson:

I appreciated the time that you spent with me discussing the problem of the District accepting primacy under the Safe Drinking Water Act. In communicating with you I am expressing the concern that has been voiced to me by the chief administrative officers of the Department of Environmental Services of the District Government.

Until we can resolve the question of whether the District of Columbia is barred from assuming primacy by virtue of a determination that the District cannot sue itself there appears to be little point in proceeding further with grant applications.

As I stated to you on the telephone, I feel that the inability of the District to sue itself is of no more significance than the ability of a state to sue itself. After all states which operate water supply systems to some degree will have the same problem. With respect to that operation, it would be absurd to expect the state to invoke legal action

Thomas Larson, Esquire

- 2 -

February 1, 1977

against itself. Further, the District of Columbia was specifically included as a state for purposes of the Act. In order to evaluate the significance of this inclusion, one need only recognize that the Congress has plenary power over the District of Columbia. In fact whatever police power the District of Columbia exercises derives from Congressional delegation of that power. Under the Constitution all the authority and powers of the Government of the District of Columbia must come from Congress. In view of the historical relationship of the District to the Congress, and in view of the inclusion of the District in the Act, it is amazing to me that any question should arise with respect to the acceptance of primacy by the District of Columbia.

I therefore sincerely hope that you will be able to reach an early decision with respect to this matter, since it is of some significance in terms of the timing of grant applications and the institution of a District water supply supervision program meeting the requirements of the Act and the regulations that have been adopted.

Very truly yours,

JOHN C. SALYER
Assistant Corporation Counsel, D. C.
202-629-5974

cc: Mr. John Brink



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

~~File~~
~~File~~
file

Manaway

March 29, 1977

John V. Brink, Chief
Bureau of Air and Water Quality Control
Department of Environmental Services
614 M Street, N.W.
Washington, D.C. 20001

Dear Mr. Brink:

I am writing at the request of John C. Salyer, Esq. that you be advised of the status of EPA's legal review of the District of Columbia's ability to satisfy the requirements for the assumption of primary enforcement responsibility contained in the Safe Drinking Water Act (the "Act"), 42 U.S.C. §530(f) et seq. and those regulations published in the Federal Register on January 20, 1976 (41 F.R. 2916) to implement the national interim primary drinking water regulations.

As you know from past discussions, EPA is concerned about the District's ability to develop and implement an adequate and effective enforcement program. This concern stems from the fact that the only public water system within the District, other than the Washington Aqueduct operated by the Corps of Engineers and beyond the regulatory control of the District, is a consecutive system owned and operated by the District itself. The District thus finds itself faced with the dual role of being both the regulator and the regulated. The conflicts inherent in a self-enforcement situation are, of course, rather obvious. The most easily discernible example of such conflict is the District's inability to institute suit against itself for violations of applicable legal requirements, recognized by Mr. Herbert L. Tucker and Mr. Salyer in recent correspondence with EPA.

It is because of such conflicts that I wrote to Mr. Tucker on January 5, 1977, requesting that the District suggest a means of resolving this problem.

In his communications with Thomas A. Larsen of our Headquarters' Office of General Counsel and Kenneth N. Klass of our Office of Regional Counsel, Mr. Salyer has expressed the view that since the District is included within the Act's definition of the term "State", and in light of the fact that the District government derives its police power from Congress, no question should arise respecting the District's acceptance of primacy. While admittedly the District of Columbia is a State within the definition of the Public Health Service Act, 42 U.S.C. §201(f), to which the Safe Drinking Water Act is an amendment, we do not believe that this, by itself, is adequate to enable the District, or any other State, to assume primacy without further consideration of the State's ability to meet the requirements of the Act and EPA's implementing regulations, especially those contained in 40 C.F.R. Part 142.

In a recent phone conversation with Mr. Klass, Mr. Salyer indicated that the District had no further thoughts as to how the self-enforcement conflicts facing it can be effectively resolved. We, too, find ourselves unable to offer any such suggestions.

Accordingly, even if those deficiencies in the District's proposed drinking water regulations brought to your attention by Mr. Ramon G. Lee of my staff can be corrected, the continued absence of a means to overcome the serious limitations attendant upon the District's being both the regulatory and operating agency for its water supply system will prevent our approval of an application for the assumption of primary enforcement authority made by the District.

Should the District not be able to assume primacy, it is my understanding that the District's drinking water distribution facilities would be subject to the requirements of the national interim primary drinking water regulations in the same manner as would water supply facilities in each of the various States.

If you have any questions, I will be happy to discuss them with you.

Very truly yours,

Greene A. Jones, Director
Water Division

cc: J. Salyer
K. Klass

GWK:dh

bcc:

D. Snyder
A. R. Morris
J. Macmaster
R. Lee
M. Sarno
T. Larsen



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

6th AND WALNUT STREETS

PHILADELPHIA, PENNSYLVANIA 19106

In Reply Refer
To: JWA30

JUN 16 1977

Mr. Harbert L. Tucker
Director
Department of Environmental Services
Presidential Building
412 13th Street, N. W.
Washington, D. C. 20004

Dear Mr. Tucker:

In accordance with the Safe Drinking Water Act, Mayor Washington on February 25, 1976, submitted a letter stating that the District intended to assume the primary enforcement responsibility for the Act. Subsequently, the initial grant was awarded on May 14, 1976, for Fiscal Year 1976. As you are aware, the District has not accepted the Fiscal Year 1977 grant offer because of inherent regulatory limitations with respect to the attainment of the primary enforcement responsibility.

We have previously expressed our concern over the District's capability to implement an adequate and effective enforcement program, since, among other reasons, the Department of Environmental Services would be the agency responsible for both the regulation and the operation of the system. These concerns were specifically detailed during numerous conversations with your staff and in letters from Mr. Greene A. Jones to Mr. Brink on March 29, 1977 and to you on January 5, 1977. Subsequently, no information has been forwarded by your office which would resolve this inherent conflict.


Compliance with the requirements for a determination of primary enforcement responsibility detailed in 40 C.F.R. §142.10 is necessary for a State to be awarded this responsibility. In cooperation with your staff, we have been unable to identify any means to meet these mandatory requirements. As a result of these deficiencies, the District cannot be awarded the primary enforcement responsibility. Accordingly,

the regulation of the District's water supply system, as detailed in the National Interim Primary Drinking Water Regulations, will, therefore, be the responsibility of this Regional Office.

As discussed above, the District controls the operation of the internal water supply system and as such is responsible for certain activities contained in the National Interim Primary Drinking Water Regulations. The specific requirements are addressed in the enclosed summary.

If you have any questions concerning these matters, please contact me.

Sincerely,



Alvin E. Morris
Acting Regional Administrator

Enclosure

cc: Tom Larsen
Alan Levin

Ms. NORTON. I will hold the record open for any expression you want to make, Mr. Mallett, concerning my last question.
[The information received follows:]

This is the District's answer to Congresswoman Norton's question:

Recently, EPA forwarded a letter denying the District "primacy" with regard to drinking water regulations within the District. Primacy would allow the District to become the state agency in the regulation, enforcement and monitoring of drinking water. We understand that given present provisions in the D.C. Code, the District is currently prohibited from regulating the Washington Aqueduct. The District's position is that although the Code prohibits the District's regulation of the Washington Aqueduct, this is a temporary condition and the District will be working towards securing primacy in the future. Changes to the Code as well as to the Safe Drinking Water Act will be necessary to enact District primacy. In addition, there is no money or staff for the necessary regulatory functions. Estimated costs of \$200,000/yr for a three year period are needed to develop legislation and regulations to enact the appropriate state drinking water activities.

Ms. NORTON. I want to thank all three of you for very helpful testimony.

We have only one more witness, Mr. James Noonan, the Senior Associate from Malcolm Pirnie, Inc.

I see you feel the area supply is safe, Mr. Noonan.

Mr. NOONAN. Yes, ma'am.

Ms. NORTON. You may proceed. We are pleased to welcome you.

TESTIMONY OF JAMES P. NOONAN, P.C., SENIOR ASSOCIATE, MALCOLM PIRNIE, INC.

Mr. NOONAN. Madam Chairman and Mr. Horn, it is a pleasure to be here this morning. I am Jim Noonan and I was Malcolm Pirnie's Project Manager for the Comprehensive Performance Evaluation.

I am here today to report on the findings and recommendations presented in our report. In my statement, I will first provide some background on the applicable drinking water regulations. I will then discuss the probable causes of the treatment plant upset that led to the boiled water notice, and finally describe immediate and near-term actions that were—

Ms. NORTON. Feel free to put your entire testimony in the record. You do not need to go through every bit of the testimony; for example, what the applicable provisions of the Act are.

We can take notice of that because we are the appropriate subcommittee.

Mr. NOONAN. OK.

Let me jump ahead to what we found on the boiled water event. When we examined the Dalecarlia operating data leading up to the boiled water notice, there were two significant performance problems.

First, the combined filtered water effluent exceeded the 0.5 turbidity unit performance criteria, of the Surface Water Treatment Rule, from around 12:00 noon on December 5 to approximately 1500 hours on December 8.

Second, on December 7, the combined filtered water turbidity from the Dalecarlia plant exceeded the 5.0 NTU maximum limit for 3 consecutive samples taken at 1:00 a.m., 2:00 a.m., and 3:00 a.m.

Both of these occurrences are significant. As indicated in the Guidance Manual to the Surface Water Treatment Rule, a plant

that cannot meet the 0.5 NTU criteria may not be providing effective microbial removal.

In addition, whenever the turbidity exceeds 5.0 NTU, there is a possibility that the turbidity could interfere with the disinfection process.

Based on a review of the data and plant operating practices at the time, the turbidity excursion above 0.5 NTU was likely caused by a combination of the following factors: Factor No. 1 was the depletion of the polymer and Basin 3 being out of service on December 5.

Factor No. 2 was the failure to monitor individual filter performance.

The third factor we identified was inappropriate filter backwash procedures.

The fourth factor was an ineffective polymer strategy was being practiced at the time.

The fifth factor was inadequate dispersion of alum through the water.

The sixth factor was that the pH of coagulation fell outside of the optimum range for removal of turbidity.

The violation of the 5.0 NTU turbidity limit resulted from partially treated water from Basins 3 or 4 being applied to the West Filters.

During this period of time, settled water quality applied to the East Filters remained between 2 and 2.5 NTU, while on the West Filters, it increased above 5.0 NTU for a 5-hour period with a peak measurement of 25 NTU at 2:00 a.m.

The significantly higher settled water turbidity from Basins 3 or 4, compared with Basin 1, suggests an interruption or reduction in alum feed to either of those basins.

While the operating log showed approximately the same alum dose to all basins, it is likely that the alum feeder to either Basins 3 or 4 was overflowing, resulting in insufficient alum dose for proper coagulation and settling to occur.

Based on initial findings, the following immediate actions were recommended and have already been implemented by the Aqueduct, and I will summarize these.

The operations staff is now routinely monitoring effluent turbidity of each individual filter.

Continuous recording turbidimeters are being installed on each filter.

There is now a written procedure that requires filters to be washed whenever the effluent turbidity exceeds 0.3 NTU, which is well below the 0.5 NTU limit.

As mentioned by General Genega, streaming current detectors have been installed in each flume downstream of the point of alum addition, and these detectors have the ability to alert operators to any change or interruption in alum feed or of any significant change in raw water quality.

The application points for the two polymers have been moved, resulting in a more effective polymer strategy.

As a handout to my testimony, I had a figure that was attached and that figure really shows that since implementing these improvements around 1 February, that the plant is capable of produc-

ing filtered water with turbidity of less than 0.2 NTU and routinely less than 0.1 NTU, which is significantly better than the minimum Surface Water Treatment Rule standard of 0.5.

Provided the plant operating staff continue to follow the above recommendations, the Dalecarlia plant is capable of consistently meeting the turbidity performance criteria of the Surface Water Treatment Rule.

The Comprehensive Performance Evaluation also identified 26 additional near-term recommendations for further improving plant performance. The Aqueduct has submitted an action plan to USEPA for implementation of these recommendations.

Madam Chair, that concludes my statement. I will be happy to answer any questions that you may have.

Ms. NORTON. Thank you very much, Mr. Noonan.

Your investigation has been treated by the EPA and the Corps and by this committee as the most authoritative because it was most comprehensive in many respects, though we have learned from the Corps about the differences in these four investigations.

I would like to ask you a question based on a report last Monday in The Washington Post that monitors installed to check the performance of filters do not work.

Could you tell us how that could be true at this point?

Mr. NOONAN. It is my understanding that the plant has been having problems calibrating these instruments, and a turbidity meter requires a certain amount of maintenance and care like any other piece of instrumentation.

It is my understanding they have had some significant problems in calibrating those, but have been working with the manufacturer of that equipment to try and get those resolved.

Ms. NORTON. I appreciate that General Genega has come to the table to comment.

General GENEGA. Thank you for the opportunity.

The turbidimeters that we installed are working. They require significantly more calibration than what we think they should; that is in the course of every second or third day, we have to recalibrate the instrument. That is heavy in the time for personnel to do that, but they are working giving us accurate readings.

We have in the calibration process a backup manual examination so we know when they are going out. They are effective. They are just requiring more work than we thought they should. We are looking at other alternatives to replace those meters, working with the manufacturer to modify the way we use them, such as to minimize that amount of work. But they are functioning, just causing us more work with them than we thought they should.

Ms. NORTON. Thank you for that clarification.

Mr. Noonan, I inquired about the employee who, after apparently doing his job for eight years, suddenly one day, didn't do it with disastrous results.

Mr. NOONAN. Yes.

Ms. NORTON. There was not even speculation as to what happened—which leaves us with some real concerns. He apparently wasn't willing to say, invoked whatever would be his rights, and everyone understands that.

At that point, it is up to somebody in the name of the public or some professional to give us some indication of what might have happened, or else we are not sure it won't happen again.

So I would like to hear from you what you think might have happened, what are the options for what might have happened, so that suddenly an employee did not do what he had always done before?

You have done an investigation and you are an independent investigator, so I ask you.

Mr. NOONAN. Let me start by saying we didn't focus on trying to point fingers at who was responsible.

Ms. NORTON. That is why I ask the question the way I do, that technically you are in a position to look at the range of problems that might have produced this result as opposed to looking at the person that might have produced the result.

Mr. NOONAN. What we found is that there are certain things you can point to human error. The fact that the polymer supply was depleted on December 5, obviously somebody made an error in judgment about how much should be on hand to supply the water needs.

The fact that if there appears to have been an overflowing alum feed unit that caused an inappropriate dose of alum to one of the treatment trains that it went undetected. There was a procedure where the operators are supposed to check the alum machines every hour, and if it was overflowing for three hours, someone failed to do that.

So those things you can point to human error. In our opinion, there were several what we call key standard operating procedures that we believe were not proper. The failure to monitor the individual filters so that you would know when a given filter was experiencing turbidity breakthroughs and required washing, was a standard procedure that was not practiced at the plant prior to our investigation.

The failure to wash filters when the effluent turbidity exceeded some target value less than the standards. The procedure prior to the boiled water notice was to wash the filters every 96 hours irrespective of what the effluent turbidity was. So that is a flaw in operating procedure.

The polymer strategy that was in place really didn't provide as effective turbidity removal as a proper polymer strategy could. The alum feed line arrangement, the part it was providing inadequate dispersion of alum to the water prior to the event—these are all operating procedures that really we feel contributed significantly to the problem.

While you can point to some areas of human error, why the operator failed to do those things, I can't really answer that, but I think there was more there than just the fact that he didn't do what he was supposed to do.

Ms. NORTON. Thank you.

Are you satisfied that the procedures in place are as close to infallible as human judgment and human activity can get?

Mr. NOONAN. I think the Corps has made tremendous strides in correcting some operating deficiencies. I think the action plan that we laid out and especially the interim measures that were laid out,

provide the Corps with all the tools they need to deliver water that meets standards.

I think the plant is certainly capable of meeting those standards and they have demonstrated that over the last three months since implementing these improvements. I can't sit here and guarantee you that the operators are going to perform their duties. So whether or not there are adequate measures in place to prevent this type of an event from occurring again is beyond my—I would only be speculating.

Ms. NORTON. You didn't look at the operators, you didn't look at the staff and their capabilities in doing your investigation?

Mr. NOONAN. On a cursory review, we looked at it. We have recommended specific training related to understanding the chemistry of coagulation which we felt was something that not all operators had a good grasp on.

We have recommended that and I know the Corps is following up with that type of training for their operating staff, but in the limited time that we had available, we couldn't examine the efficiency of every operator.

I think EPA has spent time doing that. We tried to focus more on the big picture items and provide the Corps with those actions that would give them the greatest return on their investment at this time.

Ms. NORTON. Have you looked at or examined closely the action plan that the Corps has submitted to EPA?

Mr. NOONAN. I had the Corps fax me a copy of that last Friday and did review it. It appears as though they are implementing all our 26 near-term recommendations.

Ms. NORTON. Based on your evaluation, what portion of the improvements needed at the Washington Aqueduct can be done or made without additional funding?

Mr. NOONAN. I am not sure I can answer that because I am not sure what kind of funding they have available to them at this time. The interim recommendations that we made have been implemented and I guess they have been able to do that within the funding available.

Some of the other things that we have recommended are going to require some capital dollars to implement those, so I suspect they will be needing funding somewhere for those items.

Ms. NORTON. Will your firm be performing any follow-up monitoring or review of the operations at the Washington Aqueduct?

Mr. NOONAN. Not related to the Aqueduct's operations. We are, in concert with Whitman Requardt out of Baltimore, going to be working on the residuals disposal problem and we will be working on that, but in terms of providing assistance to the Corps in implementing the near-term recommendations, I am not sure that we will be involved in that.

Ms. NORTON. Do you think the EPA is independent enough to offer the oversight necessary to assure that your recommendations are implemented?

Mr. NOONAN. Do I think EPA is independent enough?

Ms. NORTON. Let me rephrase that.

EPA was obviously involved here in the incident, and they are implicated in the incident. You are completely independent. You

have made recommendations. You have testified that you will not be directly involved in assuring that those recommendations are carried out. I can understand that.

You are an independent consultant. That leaves the EPA. Is it your view that the EPA can sufficiently monitor and give oversight of these recommendations to see that they are properly and adequately carried out?

Mr. NOONAN. I think they will have to spend a little more time than they have in the past looking at the plants, but yes, I think they have the capability to do it.

Ms. NORTON. We had testimony that while they had, in fact, monitored the Corps and the plant a few times a year, they have stepped it up to twice a month.

Do you think that is the kind of oversight that is necessary to implement the recommendations adequately?

Mr. NOONAN. I think it is a start.

Ms. NORTON. If it is a start, what would be a finish?

Mr. NOONAN. I am not sure how much staff or resources EPA has available to provide assistance here as the primacy agency. I know, for instance, in the State of Virginia when the health department gets involved in projects, there is a considerable amount of time spent by them reviewing what is going on.

It is almost a very close relationship with the water purveyors and the primacy agency, in that case the Health Department of Virginia. So I think that EPA is going to have to spend more time looking at what is going on in the plant.

Ms. NORTON. Thank you, Mr. Noonan.

Mr. Horn.

Mr. HORN. Thank you, Madam Chairman.

First let me congratulate you on your excellent series of questions. You could have made a million dollars in the courtrooms of America, but here we are.

Mr. Noonan, on page 6 of your testimony, you stated the Dalecarlia plant will be capable of consistently meeting the turbidity performance criteria of the Surface Water Treatment Rule provided the plant operating staff continues to follow the recommendations in your firm's Comprehensive Performance Evaluation.

I am going to ask a question that Chairman Norton already has explored a little bit. Does this predictability of its success hinge on the funding required for the capital improvement plan, the so-called conceptual modernization plan? Can you say anything more than just proper training of the current people will solve the problem?

Did you note in going through your review compared to the other water facilities you have examined, major flaws, major lacks, however you want to put it?

Mr. NOONAN. Let me try to answer that.

The Comprehensive Performance Evaluation looked at low capital improvements that could be made to improve performance, whereas the conceptual modernization plan really looked at the future and what drinking water regulations are going to require the Aqueduct to do in order to meet those regulations.

So it laid out a plan really to meet future recommendations. That is going to take a tremendous capital investment, as many talked about here this morning.

The Comprehensive Performance Evaluation, we haven't tried to and I don't know if the Corps has tried to estimate what the capital requirements of implementing those 33-some recommendations are.

I suspect the Corps has done that at this point since they have submitted to EPA some type of an action plan or they are at least looking at it. But I have no idea what those capital dollars will involve in terms of implementing the Comprehensive Performance Evaluation.

Mr. HORN. On page 2 of your testimony, you mentioned cryptosporidium in relation to the so-called Enhanced Surface Water Treatment Rule, and could you tell us a little more about that?

What is likely to result, what impact would this have on Dalecarlia and its current operations and its funding needs?

Mr. NOONAN. As I understand it, in light of what happened in Milwaukee, EPA is now looking at tightening down on the Surface Water Treatment Rule. When the Surface Water Treatment Rule developed, it looked at turbidity giardia viruses, legionella, but not at cryptosporidium.

The measures that are in place right now, the barriers that are in place with the surface Water Treatment Rule do not necessarily provide all the protection that is needed against cryptosporidium, so EPA is looking at what they call the Enhanced Surface Water Treatment Rule that will provide greater disinfection capability in order to mitigate any problems that there may be with cryptosporidium.

I understand the time frame for that is to be effective within the next couple of years. That is legislation or a rule that is now being developed by EPA.

Mr. HORN. How much experience have you had in looking at the operation of water treatment plants throughout the country? Is that one of your specialties basically?

Mr. NOONAN. Let me say that our team that we had, I was project manager on a team. We have people with far more experience than I do in looking at operations of plants.

I was the project manager. My specialty is design of these types of facilities. Some of my colleagues have more experience in actually looking at operability issues and we had them involved in that part of the project.

Mr. HORN. Well, based on your experience with the team and obviously the capacity your firm has with various types of drinking water treatment plants, I am interested in the Safe Drinking Water Act compliance issues.

Can you compare the Dalecarlia incident with different responses around the Nation? Have we had similar situations? We know about Milwaukee, but how about the ones that didn't hit the headlines?

When you have gone through a plant, are there operating procedures you have seen elsewhere that ought to be used here? Are we now up to snuff in terms of operating procedures in the Dalecarlia plant and other plants in the Washington Aqueduct?

Mr. NOONAN. As part of our evaluation, we did visit facilities that are currently operated by the Washington Suburban Sanitary Commission and the Fairfax County Water Authority, both of which treat Potomac River water.

We tried to bring in that collective knowledge that they have developed over the years in how to treat this type of water. Some of our recommendations mirror that expertise, and that knowledge that has been brought to bear.

Mr. HORN. When your team or your firm has visited other plants, including the two in the metropolitan area, and we think of Dalecarlia as a multi-million dollar capitalization that has been discussed a number of times this morning, does that mean that basically we are in a different situation than other plants around the United States or do all water treatment plants face a problem of obsolescence as you have looked at they will have over the years?

Mr. NOONAN. Many plants across the country are going to be spending some major capital dollars to comply with more stringent regulations that are coming in the next three to five years, so that is not unusual.

Mr. HORN. That is certainly the sense we get from having heard dozens of witnesses on the Clean Water Act and other Acts of the Federal Government.

I guess my only thought—and this is directed at the Corps of Engineers, the General in charge of Civil Works who kindly has remained, when you look at what happened here and I have seen it in my own organization when I was a university president, too often we take for granted that the operating manuals, because they have one, are actually being implemented.

The question I would ask in any human organization where you are dealing with a human factor and with rapid changes in technology, to what degree is the Corps using this incident as a basis for systematically reviewing other responsibilities it has?

Now I am thinking of the flood control situation in southern California, in the Great Plains, all the rest of it. Is this a chance to really go out and check? Are we up to date in the operating procedures, whatever facility of the Corps that we are responsible for?

You affect the lives of millions of citizens and you do your job very well, but we are all busy in this world and sometimes the simplest little thing that causes us the biggest problem when it goes wrong, we say "Gee, they have the manuals. I guess they are okay."

In this fast-changing field of technology, last year's manual might not be okay. Obviously training is key, but what is the role of that person? What are they supposed to be doing and are they doing it and if they drop dead tomorrow, can we bring in somebody and will they know instantly what to do because it is written down somewhere?

What is your feeling on that, General?

General GENEGA. Your point is well taken. We perhaps—and this is hindsight—should have learned from our other activities with regard to our treatment of the Washington Aqueduct rather than the flip.

For example, on operation of our dams, I think as being places where we directly affect the lives of many millions of Americans,

we have a systematic process of reviewing those manuals. They are reviewed periodically. They are subject to coordination with State and local authorities that are responsible for the well-being of their citizens.

We did not apply those to the Washington Aqueduct. We have applied that review now with Malcolm Pirnie, with EPA. Our intention is to do those on a cyclical basis as we do in our other responsibilities.

Your point is well taken. We intend to implement it here. We in hindsight should have done that based on our, not just experience, but the way we implement our responsibilities elsewhere.

Mr. HORN. Thank you.

Ms. NORTON. I want to thank you, Mr. Horn.

First, I want to thank you for sitting as Ranking Member throughout this long hearing and for the way in which you brought to bear with obviously less familiarity with this region some of the cardinal points that relate to the subcommittee's overall jurisdiction.

I appreciate knowing that you are a fourth-generation Washingtonian. That makes two of us on this subcommittee, and there are very few of us left.

The hearing has been very useful and I want to thank all the participants, Mr. Noonan and all who have preceded you. I think what you have done this morning is to provide the necessary assurance to the residents of this region that the steps that you could take since December have indeed been taken.

While there are additional steps to be taken, I think that the assurances that the committee sought have been provided, and I want to indicate my appreciation that the four investigations were done and completed in short order.

Let me say in closing the hearing that I think that there are two major deficiencies that need to be noted. One is that we do not have a basis for comparing yet, although this is the second time it has been raised, the plants in this region with some standard—a standard that we who teach use, which is marking on the curve even.

I still teach a course at the Georgetown Law School so I know all about marking on the curve. I don't know what the curve is for plants or at least for their procedures for first readings. So I really have no basis to judge where we fit, whether we are at the bottom, at the top, in the middle. It would help us to know that.

There will be other oversight hearings because we are going to try to do these hearings at least on an annual basis. We need to know and EPA must have some data that will enable the Corps and the EPA to judge this region against others, and until we have that, we will not be able to report to the residents of the region that all is well.

We recognize that there are perhaps unusual problems with respect to our physical infrastructure in part because we are an old area when it comes to that infrastructure. So the second area of concern is one that is not in your complete control, and that is devising a system to finance the beginning of a modernization of the physical infrastructure.

That alone poses a separate and unrelated problem that must be addressed. We only have hold of half the problem now. You are modernizing your procedures. It is up to all of us to continue to work to modernize the distribution system that is equally important.

We want to assure you that we will follow up on our concerns, ask you to continue to follow up on yours, and we express our appreciation for what you have done thus far.

I want to especially express my appreciation to Chairman Applegate and to the staff of the subcommittee who are greatly overburdened as we approach the end of the session, but nevertheless, found time to help us to organize this hearing and lead the subcommittee through this effort.

Thank you.

The subcommittee is adjourned until 9:30 Wednesday, June 22, 1994.

[Whereupon, at 12:20 p.m., the subcommittee was adjourned, to reconvene at 9:30 a.m., Wednesday, June 22, 1994.]

PREPARED STATEMENTS SUBMITTED BY WITNESSES

DEPARTMENT OF THE ARMY

COMPLETE STATEMENT

OF

MAJOR GENERAL STANLEY G. GENEGA

DIRECTOR OF CIVIL WORKS

U.S. ARMY CORPS OF ENGINEERS

BEFORE THE

COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT

U.S. HOUSE OF REPRESENTATIVES

ON

STATUS OF FOLLOW-UP ACTIONS TO THE DECEMBER 1993
WATER SUPPLY PROBLEM OF THE WASHINGTON AQUEDUCT

JUNE 20, 1994

(265)

Mr. Chairman and Members of the Subcommittee, I am pleased to be here today to provide an update on Army Corps of Engineers studies and actions related to the water supply problem at the Washington Aqueduct in early December 1993. Accompanying me today are Brigadier General Paul Y. Chinen, the North Atlantic Division Commander, and Colonel J. Richard Capka, the Baltimore District Commander, who have responsibility for operation of the Washington Aqueduct.

That incident affected residents of the District of Columbia and neighboring communities in Maryland and Virginia. Today I can assure you and the water users that water coming from the Corps' water treatment plants is of good quality and safe to drink and will continue to be so.

I will summarize the events that occurred during the December incident and the quality of water from the plant since the incident. I will then address the various studies and investigations following the incident, actions already taken on some of the recommendations, and planned future actions. I will conclude with a discussion of actions related to four areas of concern raised by this Subcommittee last December.

Summary of Incident

On December 8, 1993, the Environmental Protection Agency (EPA) Region III issued a Boil Water Notice to the residents of the District of Columbia and Falls Church and Arlington County, Virginia.

The notice was issued as a precautionary measure in response to the high level of turbidity that we detected in the treated water supply coming from the Dalecarlia Water Treatment Plant and reported to EPA Region III on December 7, 1993. The potentially harmful organism of concern was cryptosporidium.

The Corps of Engineers conducted three consecutive days of special testing for the organisms of concern and none was found in the water. EPA required only two consecutive days of organism free samples, but we decided to do a third day of samples to make sure the water was safe. We also took additional distribution system bacteriological samples to affirm the water was safe.

Additionally, we understand that clinical surveys of area hospitals and nursing homes conducted by public health officials showed no increase in illnesses that could be caused by water-borne organisms. After EPA verified that the Dalecarlia plant was operating satisfactorily and was well within EPA standards, the Boil Water Notice was lifted on December 11, 1993.

Immediately after the incident occurred, the Corps began an investigation into the cause. Our conclusion was that there were several aggravating factors, but, ultimately, it was human error that caused peak turbidity readings for filtered water to rise above the EPA allowable standard of 5 nephelometric turbidity units (NTU). We found that aluminum sulfate (alum), a coagulant chemical, was not added in the appropriate manner to compensate for the raw water turbidity. It appears there was an imbalanced distribution of alum into one of the flumes, or channels, through which water flows to the sedimentation basins. This misdosing of the alum chemical resulted in high levels of turbidity passing through the sedimentation process (where most should have been removed) and on to the rapid sand filters. Some of these filters were overwhelmed, resulting in the turbidity breakthrough.

The Dalecarlia Water Treatment Plant's performance since the December incident has met EPA's average turbidity performance criterion of 0.5 NTU for filtered water. Filtered water turbidities have averaged less than 0.15 NTU, with a maximum reading of 0.42 NTU. This has been accomplished despite the fact that raw water turbidities have reached levels that exceeded those preceding the December incident.

We are now cleaning each filter when one of three thresholds is reached: when filtered water turbidity reaches 0.30 NTU for that filter; when there is a six foot head loss through the filter; or, when the filter has operated for seventy-two hours. The 0.30 NTU is well below EPA thresholds for the filtered water for the entire plant.

Investigations and Actions Taken

We have thoroughly evaluated our operations through a Commander's internal investigation, an independent peer review, and a Comprehensive Performance Evaluation. Additionally, the EPA has reviewed our operations.

In order to ensure that we had the benefit of an impartial expert assessment of our Aqueduct operation, we asked a sister water utility from Newport News, Virginia, to do a peer review and make recommendations for immediate improvements. We also contracted with a recognized expert in the field of water treatment, Malcom Pirnie, Inc., to do the Comprehensive Performance Evaluation of the overall operation of the Washington Aqueduct Division and both the Dalecarlia and McMillan Water Treatment Plants. Finally, we received the results of EPA's investigation of the event.

We did not wait for the final reports from the investigations to make changes. As soon as prudent interim recommendations were available, we implemented the appropriate

adjustments. Several of the immediate adjustments that were made include:

1. Providing additional supervision to ensure problems are recognized and appropriately addressed in a timely manner.
2. Completing installation of streaming current monitors that provide continuous direct readings of the effectiveness of the alum dosage. They are in place and operating.
3. Ensuring timely completion of installation of filter condition monitoring equipment that allow us to respond to filter efficiency variations as they occur. This equipment is in place and operating.
4. Adjusting the application of chemical polymers to maximize the effectiveness of both the coagulation and filtration process.

Additionally, we have initiated improvements to our formal training. Staff training has been expanded to incorporate the latest available information and instruction. This training will include the implementation of a formal operator certification program. Once fully implemented, we will have an Association of Boards of Certification sanctioned program that will certify the qualifications of all plant operators. Certification will be a prerequisite for specific positions and career advancement.

Conclusions from all four investigations have allowed us to review and adjust operating procedures and staffing policies to ensure that water quality remains satisfactory and that efficient notifications and responses to water quality issues are assured. We are continuing to review our standard operating procedures and are revising our treatment plant operations and maintenance requirements.

Malcom Pirnie also provided us a concept plan for the modernization of our water treatment facilities. I want to point out that developing this plan was a separate action from the review of the December incident. It was undertaken in response to a request to the Corps by both this subcommittee and EPA Region III to define a "state of the art" water treatment plant and to provide a plan for its implementation.

Future Directions

The Corps has an ongoing capital improvements program at the Washington Aqueduct which includes replacements, upgrades and improvements needed to ensure reliability and to meet current and projected regulatory standards. This major capital improvements program has been coordinated with our customers. We have done a

comparative review of our capital improvements program and the Malcom Pirnie recommendations, which were very similar. In conjunction with EPA and our customers, the District of Columbia and Arlington County and Falls Church Public Works, we have put together a modernization plan for implementation, subject to the availability of funds.

Briefly, our conceptual modernization plan defines a state-of-the-art water treatment system. It establishes three levels of priority (stages of improvements).

The first level identifies improvements needed to meet the requirements of the next round of the Safe Drinking Water Act standards, which, by 1998, will call for a reduction in levels of total trihalomethanes (THM) from 100 micrograms per liter to 80 micrograms per liter and a new requirement of 16 micrograms per liter of HAAs. Our current average THM level is 92 micrograms per liter.

The first priority improvements have been identified in our existing Capital Improvement Program that is presented annually to Congress in conjunction with the District of Columbia budget. They include dredging the Dalecarlia Reservoir, improved sedimentation basin solids removal and disposal, computerized monitoring and controls, and chemical storage and delivery facilities for the production of chloramine, an alternative disinfectant to further reduce the formation of THM. The estimated cost of these water quality and system reliability improvements is from \$71.2 to \$126.5 million, with completion expected in June 1998.

The second stage of improvements addresses the anticipated further reduction of allowable THM levels to 40 micrograms per liter around the turn of the century. Attaining this proposed level will require the substitution of ozone for primary oxidation and the use of granular activated carbon cap on existing filters to promote bio-degradation of naturally occurring organic matter, the precursor to THM formation.

These second stage improvements are estimated to cost from \$92.8 to \$192.2 million. The estimated deadline for completion is January 2002.

The third stage, from 2002 and beyond, addresses future potential drinking water requirements beyond the second stage horizon. This level addresses synthetic organic compounds and pesticides, which might require the use of granular activated carbon filtration.

Committee Areas of Interest

There were four areas of concern raised by this committee last December: customer coordination; notification procedures; alleged disposal of hazardous waste; and equal employment opportunity concerns. I will summarize our efforts related to these items.

Customer Coordination

We have formalized a process for holding at least a quarterly meeting among the various customers (Directors of Public Works) and Corps executive level commanders. There has already been a series of these meetings to discuss various issues, including funding and the modernization plan. The modernization plan has full customer concurrence, provided funding issues are resolved.

Notification Procedures

There are both internal and external notification requirements. To address internal needs, we established (in January 1994) supervisory notification thresholds for various potential incidents. These included procedures for microbiological incidents. We also revised procedures for reporting incidents through the chain of command to the Secretary of the Army.

We have reviewed and improved our external notification procedures and exercised them with the EPA. Additionally, we are working very closely with the EPA and the Metropolitan Washington Council of Governments in their development of area wide notification procedures.

Hazardous Waste

An employee at Washington Aqueduct had made allegations of improper operations and improper disposal procedures of hazardous waste (PCBs and battery acid) at the Aqueduct resulting in gross contamination. The Baltimore District contracted with an outside environmental consultant to investigate these allegations and conducted numerous internal investigations. None of these allegations were substantiated as alleged. Initially, there was one location where lead contamination of the ground was found, which was attributable to a battery acid spill. Although the contamination did not exceed established standards, it was subsequently cleaned up. The soil in this area has been removed and disposed of properly. More recently, a buried battery casing was found at another location. Testing of that area is underway and appropriate actions will be taken.

EEO Considerations

There were allegations that there were Equal Employment Opportunity (EEO) issues at the Washington Aqueduct Division. The commander of the Baltimore District directed that the District's EEO Office hold a series of sessions, from January through March of this year, with employees to determine if this was the case and identify the issues. Seventy-five employees participated in these sessions.

The EEO Office determined from these sessions that the issues being aired were not EEO-related; that is, there was no evidence of discrimination. The issues being raised were management-related issues. Corrective actions have been taken or are underway on these.

EEO issues are of critical concern within the Corps and the district commander will continue to monitor the command climate at both water treatment plants using formal and informal processes. He has been and will continue to be proactive in dealing with issues to ensure continued improvement in communications between employees and management.

CONCLUSION

In closing, I would like to stress again that we take supplying safe and adequate water to our customers seriously. We have been producing quality water, since the incident, which is safe to drink. Many of our employees are customers of this system and our Headquarters building is also within the service area. We are committed to taking every step necessary to preclude a recurrence of the type of incident which occurred last December will not happen again.

Mr. Chairman, that concludes my statement. I will be happy to answer any questions.

STATEMENT OF
STANLEY L. LASKOWSKI
DEPUTY REGIONAL ADMINISTRATOR
REGION III U.S. ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
OF THE
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, D.C.

JUNE 20, 1994

Good morning Mr. Chairman and members of the Subcommittee.

I am Stanley L. Laskowski, Deputy Regional Administrator of the Mid-Atlantic Region of the Environmental Protection Agency (EPA) in Philadelphia. We appreciate the opportunity to discuss EPA's independent investigation into the causes of the December 1993 surface water treatment violations by the Dalecarlia Water Treatment Plant in Washington, D.C., and our plan of action to help ensure that this will not happen again.

I. Background

I would like to provide you with some background information before discussing the major findings of our investigations and the current status of our plan of action:

The U.S. Army Corps of Engineers, Baltimore District (COE), Washington Aqueduct Division operates two water treatment plants (Dalecarlia and McMillan) that serve drinking water to the nearly one million people the Metropolitan Washington Area which includes the District of Columbia, City of Falls Church, and parts of Fairfax County, Virginia and Prince George's County, Maryland. The

Dalecarlia plant, originally constructed in 1928, has a capacity to produce 164 million gallons per day (MGD) of filtered drinking water; the McMillan plant, originally built in 1905, has a capacity to produce 125 MGD of filtered drinking water. Both plants utilize the Potomac River for their water source. In December, 1993, at the time of the incident under investigation, the McMillan plant was out of service for routine maintenance.

The EPA Regional Office in Philadelphia has regulated the COE's treatment plants and the District's distribution system since 1975. This arrangement is unique to the District.

On December 7, 1993, the filtered water at Dalecarlia exceeded 5 Nephelometric Turbidity Units (NTU) for three consecutive hours, reaching a peak value of 9.0 NTU. NTU is a measurement of the turbidity, or cloudiness of the filtered water, which indicates water treatment problems, and can interfere with disinfection. The levels during this three hour period at Dalecarlia were in violation of the treatment technique requirement of the Surface Water Treatment Rule (SWTR), which stipulates that turbidity readings must be less than 5.0 NTU at all times and that 95% of a facility's monthly samples must be below 0.5 NTU.

The high turbidity readings posed a potential human health threat to the consumers of the water because high turbidity can indicate a problem that may lead to gastrointestinal illness in healthy people and more serious problems in people with compromised immune systems or the elderly. The conditions at the plant were similar to another situation that occurred the previous spring in

Milwaukee, Wisconsin.

In Milwaukee, about 400,000 people became sick due to a parasite, *Cryptosporidium*, which can be transmitted through drinking water. It was this knowledge, combined with EPA's concern for the public health that led EPA, Region III officials to issue a boil water advisory on December 8, 1993. The advisory remained in effect for the entire Aqueduct service area until further testing could prove that no *cryptosporidium* was present in the finished water. On December 11, 1993, after two consecutive days of negative test results for *Cryptosporidium* and other microorganisms, EPA lifted the boil water advisory.

At the request of EPA, Region III the EPA's Denver-based National Enforcement Investigations Center (NEIC) conducted an independent investigation to determine the causes of the high levels of turbidity (or cloudiness) that prompted EPA to issue the boil water notice to the Metropolitan Washington Area in December 1993.

II. NEIC Investigation

The NEIC investigation revealed that the December incident of high turbidity was caused by a combination of the following factors: (1) aqueduct facilities being out of service; (2) high flow rate through the Dalecarlia plant sedimentation basin; (3) inadequate alum mixing (diffusers not in service); (4) chemical (alum and polymer) supply shortage; (5) alum feed (inaccurate flow or alum weight calibration, potential overflow from feeder solution

box); (6) operator error; (7) filtration operations (high flow rate to the west side filters, long filter runs during a period of high solids loading, inadequate backwashing) and (8) internal communication problems. See attached appendix for further description of investigation results.

It is clear from the findings of this report that several seemingly independent operational problems contributed to the larger problem of higher turbidity in December 1993. Traditionally, EPA has not had a role in resolving routine operational problems at water treatment plants. However, EPA has re-evaluated its oversight functions and has taken the following steps to address this unique situation in Washington.

III. Action Plan

First, the Regional office issued an Emergency Order under Section 1431 of the Safe Drinking Water Act (SDWA), requiring the COE to perform the following:

- * Complete a Comprehensive Performance Evaluation (CPE) of the Dalecarlia and McMillan treatment facilities to evaluate the operation and maintenance of the facilities and to provide recommendations to improve performance.
- * Evaluate the COE's current procedures for notification of COE supervisory personnel and EPA personnel when potentially dangerous situations occur at the plants, including evaluating and improving existing procedures that are to be incorporated into a document.

- * Perform an analysis of capital improvements which can and should be made at the water treatment plants.
- * Develop a monitoring program to track levels of Giardia, Cryptosporidium, turbidity and total coliform in the Potomac River for the next 1 1/2 years.

Second, the Regional office has increased its oversight of the Aqueduct by:

- * Conducting more frequent on-site visits (an average of twice a month) to examine operation and maintenance records, and to discuss technical problems and/or concerns with plant staff.
- * Establishing an open line of communication between EPA and COE's management and supervisory staff to ensure that routine and day to day operational problems are quickly reported and resolved.
- * Implementing and testing a formal 24-hour procedure for the COE to report potential SDWA violations to EPA (Region III).
- * Reviewing and approving the COE's monitoring plan to track Giardia and Cryptosporidium levels in its source water. To date, all tests for these organisms have been negative.
- * Reviewing and approving the COE's modernization plan for its water treatment plants. Region III has participated in meetings between the COE and its customer water systems to discuss plans for funding and implementing the improvements.
- * Continuing to support water treatment plant operator and distribution system operator training for COE and District of Columbia staff. The COE has made this training mandatory

for all operators.

In addition to EPA's enforcement and oversight activities, the Region is providing a grant to the Metropolitan Washington Council of Governments (COG) to develop a drinking water emergency notification and response plan. This plan will detail the procedures for identifying, reporting and responding to a drinking water emergency and will be used by the COE, the District of Columbia, and the affected communities in Maryland and Virginia. EPA is actively participating in and providing significant input into the development of this plan.

IV. Current Status

Currently, the COE is diligently working to ensure that their customers continue to receive safe drinking water. For example, COE has complied with all requirements of the Emergency Order and acted immediately on recommendations of the NEIC and their own Comprehensive Performance Evaluation. As a result, since December 1993, the COE has been in full compliance with the Safe Drinking Water Act. Specifically, filtered water turbidity levels have been well below allowable limits.

Furthermore, COE has successfully initiated efforts to reduce the likelihood of the occurrence of an incident such as that in December 1993. EPA and the COE are committed to the delivery of safe water to D.C. area residents and we will continue to work with the COE on the operations, maintenance and capital improvements at Dalecarlia and McMillan treatment plants. Thank you.

APPENDIX - NEIC INVESTIGATION FINDINGS

- * **Maintenance work at the McMillan plant**
From November 10, 1993 to December 11, 1993, all water serving the Metropolitan Washington Area was being treated at the Dalecarlia facility and was distributed from Dalecarlia. When the facility began to have problems, it did not reduce its production.
- * **High flow rates in the sedimentation basins**
The Dalecarlia facility has four sedimentation basins, where alum and polymers are added to settle the water and remove solids. None of the basins are equipped with sludge handling equipment. Consequently, the basins filled with sediment and had to be taken off-line, drained, and cleaned. Because one of the basins was off-line from October 5, 1993 to December 13, 1993, the flow rates to the three remaining basins were increased. This resulted in reduced detention times and may have impacted the complete settling of solids.
- * **Alum supply contract**
In October, the COE's new alum supply contract was protested by a losing bidder. COE regulations require that under these circumstances, the contract is stopped. As a result, the COE was limited to emergency purchases to replenish their rapidly dwindling alum supply. Management was not made aware of this situation in a timely manner. Heavy rains and high river turbidities required more alum to be added than usual, causing a shortage of alum. This shut down an additional sedimentation basin from 11 A.M., December 5, 1993, to 8 A.M., December 6, 1993. When the basin was restored to operation on December 6, 1993, the basin flow rates increased abruptly by nearly 50%, a situation that can impair filter performance. The combination of the two basins being out of service at the same time contributed significantly to the onset of the high turbidity.
- * **Inadequate alum mixing**
There are four parshall flumes, which among their other uses, are used to mix the alum hydraulically prior to the water going to the four sedimentation basins. The diffuser applying alum to one of the flumes was plugged. The fact that a temporary diffuser line was in use may have resulted in incomplete mixing.
- * **Problem with alum feed**
It is also believed that one of the alum feeders overflowed into another flume. The overflow caused uneven coagulation to occur in the sedimentation basins. Even though the operator's logs showed the same alum dose to all basins, it is believed

that the alum feeder to one of the basins overflowed for some time prior to midnight on December 6, 1993, resulting in an insufficient alum dosage for proper coagulation and settling to occur.

* **Polymer shortage**

Polymer is used in conjunction with alum to aid filtration, and it also increases filter performance. Unaware that a new supply of polymer had arrived at the plant, the operators thought they had exhausted their polymer supply. No polymer was added from 1 A.M. on December 5, to 11 A.M. on December 6, 1993. Management was unaware that the operators were not using the polymer.

* **pH Adjustment**

In order for the chemistry of coagulation to work effectively, the pH (acidity of the water) should be maintained between 6.5 and 7.5. Dalecarlia has no equipment for adjusting pH, thus when the pH dropped to 5.5 on December 7, 1993 due to the heavy dosage of alum the water was receiving, the plant could not correct the problem.

* **Problem with flow meters**

If alum feed rates are based on inaccurate flow meter reading, improper alum dosages could result. The plant operators stated they had problems with the flow meters on the parshall flumes in the past. Flow meter verifications should normally be done following flume shutdowns, but were not done when one of the flumes was returned to service preceding the turbidity event.

* **Filtered water sampling line**

The sampling line that the operators use to sample filtered water turbidity was off-line for maintenance on December 6, 1993. The operator had to leave his station hourly to manually collect samples. This may have impacted his other duties.

* **Filter rates**

There are 36 gravity filters, 26 on the east side of the plant and 10 on the west side. From 11 A.M. on December 6, 1993 until 1 A.M. on December 7, 1993, plant flows ranged from 185 to 205 MGD. The filtration rates on the west side filters should not exceed 90 MGD. It is possible that west side filtration rates exceeded recommended rates.

* **Filter operations**

During the turbidity event of December 7, 1993, four of the ten west filters had not been backwashed for over 96 hours. At that time, a 96 hour period was within standard operating procedure. Additionally, several filter sweeps were out of service so that the backwashing that did occur may not have adequately cleaned the filters. The filters did not have individual turbidity meters so there was no way for the

operators to know if or when a filter was experiencing turbidity breakthrough. By basing the need for filter backwashing on time of operation, as opposed to filter effluent turbidity, the effluent quality of the individual filters may have exceeded 0.5 NTU.

* **Internal communication problem**

Operators working the morning shift on December 7, 1993 were not informed of the high turbidity by the previous shift. The plant's management was not notified when filtered water turbidities exceeded 5.0 NTU. Poor communication played a key part in the problem because it delayed an appropriate response.

* **Operator error**

At 5 P.M. on December 6, 1993, raw water turbidities increased from 86 to 130 NTU due to heavy rains in the Potomac Watershed that previous weekend. The operators failed to increase the alum feed rate for almost two hours after the raw water turbidity increases were noted, which may have compounded the problem.

* **Staffing**

There was only one operator at the plant during the early hours of December 7, 1993. The second operator was away from the plant taking samples at a reservoir at a time when the plant was having operational problems. Thus, staffing could have been a factor.

STATEMENT OF
ROBERT L. MALLETT
CITY ADMINISTRATOR AND DEPUTY MAYOR FOR OPERATIONS
GOVERNMENT OF THE DISTRICT OF COLUMBIA

BEFORE THE

HOUSE OF REPRESENTATIVES
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT
Monday, June 20, 1994

Chairman Applegate, Congresswoman Norton and members of the subcommittee:

First, thank you for revisiting the issue of the safety of our region's drinking water, stemming from the December 1993 boil water emergency. Second, thank you for giving me the opportunity to come before you to discuss some of the progress we have made, as a region, in addressing this problem.

Today, I am wearing two hats. On the one hand, I am here to represent the District of Columbia, where I serve as City Administrator and Deputy Mayor for Operations. On the other, I am here to represent the Metropolitan Washington Council of Governments (COG), of which I am currently President. As you may recall, COG was instrumental in coordinating the December 1993 response to the water crisis at the Dalecarlia Water Treatment Plant, owned and operated by the U.S. Army Corps of Engineers. Accompanying me today is Stuart Freudberg, COG's Director of Environmental Programs.

On December 20, 1993, several representatives of the region, including myself and Ruth Crone, Executive Director of COG, testified before this subcommittee. At that time, it was clear that the boil-water notice had dampened the public's confidence in the safety of our region's drinking water. To be certain, the task of restoring that confidence is incomplete. But I am delighted to report today that a number of actions have been taken to restore that confidence.

This morning, you heard testimony from the U.S. Army Corps of Engineers and EPA. Both of these federal government entities have established numerous measures to improve the operations and oversight of the Washington Aqueduct Division. It is my understanding that some of the improvements the Malcolm Pirnie reports recommended have already

STATEMENT OF ROBERT L. MALLETT
SUBCOMMITTEE ON WATER RESOURCES AND THE ENVIRONMENT
MONDAY, JUNE 20, 1994
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been implemented and more are to come. And there is no doubt these improvements must continue.

I also wish to salute the U.S. Army Corps of Engineers for establishing a committee to coordinate decisions regarding capital improvements between the Government of the District of Columbia and the other local governments in our region. This dialogue must, too, continue.

I would be remiss if I failed to mention that we are looking, hopefully, to Congresswoman Norton, Congressman Moran, and Senator Warner to help us identify ample resources to finance the necessary improvements at the Washington Aqueduct Division. Otherwise, current ratepayers will have to bear the full cost of such capital projects on a "pay-as-you-go" basis. This means, of course, that ratepayers will have to pay for capital costs in the same year they are expended. The drawback of this approach is that rates will have to be sharply increased in the short term.

For this reason, we urge Congress to authorize the proposal to obtain financing through the Treasury for the Federal Financing Bank. This congressional authorization promises to minimize the potential risk of future problems with our region's drinking water. We cannot assume that future emergencies will not occur. Should such an emergency befall us, we must be better prepared to deal with it. With that in view, the COG Board asked staff to organize a drinking water summit in the wake of the December 1993 boil water emergency. That summit, held January 28, 1994, drew more than 70 officials from local, state and federal governments and other agencies. The summit participants called on COG to organize a task force -- composed of local, state and federal water interests -- to develop a new regional drinking water emergency agreement. Such an agreement would replace the emergency agreement signed in 1979, an agreement that was unfortunately outdated, incomplete, and thus not invoked during the boil water emergency last December.

Since then, the task force has been organized; it has already held a number of meetings to address revising the emergency agreement. Thus far, I am happy to report that agreement has been reached on the precise issues to be addressed in a new plan. These issues have been assigned to work groups, consisting of the region's health officers, water utility officials, emergency managers, public information officers and environmental managers.

STATEMENT OF ROBERT L. MALLET
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The COG Board appointed me to serve as chair of the task force's Steering Committee; Dr. Al Morris, Director of the Water Management Division for EPA Region III, is the vice chair. In addition to his direct participation, EPA Region III has agreed to provide part of the financial support for the planning process, which COG staff is now coordinating.

The task force has developed an interim plan for dealing with an emergency at the Washington Aqueduct Division. The result is that, should another emergency occur, the region is prepared to respond in an organized and coordinated fashion. I expect this interim plan will be incorporated into the final agreement.

The interim plan addresses many of the concerns that were raised about how the manner in which the December 1993 crisis was handled. The plan calls for consultation with local government officials when the potential for an emergency exists rather than after it has been declared. EPA has agreed to confer with the health officers from the District and other local governments -- before issuing a boil water notice. Precisely, to minimize confusion and delays, the plan establishes clear procedures for notifying responsible officials and agencies of decisions. It also provides for procedures to coordinate the dissemination of consistent information to the public about steps they should take to safeguard their drinking water, in the event of an emergency.

In addition to this interim plan, the task force is working on several measures to update or make the old agreement more complete and comprehensive. These measures include plans to address a situation on the Potomac River that threatens the safety of more than one of the major treatment plants simultaneously, as the oil spill at Sugarland Run threatened to do in March 1993.

I'm confident that, as a result of these efforts, our region will be better prepared to effectively and expeditiously cope with future emergencies. Concomitant with existing improvements and those that will be made at the Washington Aqueduct Division, we are confident that our region will be better equipped to provide residents of the greater Washington region with a clean, safe and reliable supply of drinking water.

I am now available to answer any questions you may have.

Thank you.

STATEMENT

OF

**JAMES P. NOONAN, P.E., SENIOR ASSOCIATE
MALCOLM PIRNIE, INC.**

BEFORE THE

**SUBCOMMITTEE ON WATER RESOURCES AND ENVIRONMENT
COMMITTEE ON PUBLIC WORKS AND TRANSPORTATION
U.S. HOUSE OF REPRESENTATIVES**

WASHINGTON, D.C.

20 JUNE 1994

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE. . .

I am James Noonan and I was Malcolm Pirnie's Project Manager for the Comprehensive Performance Evaluation. I am a registered professional engineer, a diplomate of the American Academy of Environmental Engineers and I have over 20 years of water system engineering experience. I am here today to testify on the findings and recommendations presented in the Comprehensive Performance Evaluation for the Dalecarlia and McMillan Water Treatment Plants.

In my testimony, I will first provide some background on the applicable drinking water regulations, then discuss the probable causes of the treatment plant upset that led to the "Boil Water" notice, and finally describe the immediate and near-term

actions that were recommended for improving performance at the Dalecarlia and McMillan Water Treatment Plants.

Regulatory Background

In order to understand the factors that contributed to the "Boil Water" notice, there is a need to review the regulatory background. As part of the 1986 Amendments to the Safe Drinking Water Act, USEPA finalized the Surface Water Treatment Rule (SWTR) in 1989 and it became effective in June 1993. This rule formally established a multiple barrier concept for microbial control as follows:

- The first barrier is removal of the target microorganisms by coagulation, sedimentation and filtration.
- The second barrier is primary disinfection to kill or inactivate the microorganisms that might pass through the sedimentation and filtration processes.
- The third barrier is maintenance of a disinfectant residual in the distribution system for microbial control.

The primary focus of the SWTR is the control of: turbidity; Giardia cysts; viruses; heterotrophic plate count organisms (HPCs) and Legionella. The control of Cryptosporidium oocysts was not included in the SWTR but it is currently being considered as part of the proposed Enhanced Surface Water Treatment Rule (ESWTR).

To ensure that filtration and disinfection are satisfactorily practiced, filtration plants must meet specific monitoring and performance criteria. Under the SWTR, the minimum turbidity performance criteria for systems using conventional treatment are:

- Filtered water turbidity must be less than or equal to 0.5 NTU in 95 percent of the measurements taken every month.
- The filtered water turbidity may not exceed 5 NTU at any time.

In addition to meeting the requirements of the SWTR, the recent outbreak of Cryptosporidiosis in Milwaukee has highlighted the potential public health significance associated with failure to provide effective particle and microbial removal for surface water supplies. This is especially true for Cryptosporidium oocysts, since they are relatively resistant to disinfection and filtration provides the most important barrier.

"Boil Water" Event

When we examine the Dalecarlia WTP operating data for the period leading up to the "Boil Water Notice," there are two significant performance problems that occurred during that period of time:

- The combined filter effluent exceeded the 0.5 NTU turbidity performance criteria of the SWTR from 12 noon on 5 December through approximately 1500 hours on 8 December.
- On December 7, 1993, the combined filtered water turbidity from the Dalecarlia WTP exceeded the 5 NTU maximum limit of the SWTR in three consecutive samples taken at 1 a.m., 2 a.m. and 3 a.m. In response to filtered water turbidities exceeding the 5 NTU maximum limit for three consecutive hourly samples, USEPA decided that a potential risk to public health existed and issued a "Boil Water Notice" on December 8, 1993.

Both of these occurrences are significant. As indicated in the Guidance Manual to the SWTR, a treatment plant that cannot meet the 0.5 NTU turbidity performance

criteria may not be providing effective microbial removal. In addition, whenever the turbidity exceeds 5 NTU, there is a possibility that the turbidity may interfere with the disinfection process.

Based on a review of the available data and plant operating practices at the time, the turbidity excursion above 0.5 NTU was likely caused by a combination of the following factors:

1. Beginning on 5 December 1993, the depletion of filter aid polymer combined with the flow changes that were produced when the No. 3 flume and basin were removed from service, resulted in a plant upset and turbidity breakthrough (i.e., turbidity greater than 0.5 NTU) in the filters.

Before the plant could completely recover from the initial upset, it appears that a second upset was produced when, beginning at 5 p.m. on 6 December, and continuing through 7 December, the raw water turbidity increased substantially.

2. Without monitoring the effluent turbidity of the individual filters, there was no practical way for the operators to know if or when a filter might be experiencing turbidity breakthrough.
3. The operating practice of backwashing filters based on length of time in service without regard to effluent turbidity allowed some filters to continue to operate that should have been washed.
4. As demonstrated by the pilot-scale treatability studies, the addition of alum alone is not sufficient to prevent turbidity breakthrough in the filters, and the polymer strategy that was in use at that time provided only limited benefits and was not sufficient to eliminate the possibility of turbidity breakthrough.
5. The arrangement of the alum feed lines resulted in inadequate dispersion of coagulant into the water.
6. Finally, the increased alum addition, combined with low raw water alkalinity, decreased the coagulated water pH on December 8 from 6.6 at 12 midnight to 5.5 at 8 a.m. The coagulated water pH remained at 5.5 for about 6 hours. Without the ability to feed pre-lime or pre-caustic

soda to the rapid mix, it is possible that there was not sufficient alkalinity in the water for the chemical reactions associated with alum to proceed.

The violation of the 5 NTU turbidity limit resulted from partially treated water from Basin 3 and/or 4 being applied to the West Filters. At 12 midnight, settled water quality applied to the West Filters increased above 5 NTU for a 5 hour period with a peak measurement of 25 NTU at 2 a.m. During this same period, settled water quality applied to the East Filters remained between 2.2 and 2.6 NTU. The significantly higher settled water turbidities from Basins 3 and/or 4 compared with Basin 1, suggests an interruption or reduction in alum feed to either Basin 3 or 4 for some period of time prior to 12 midnight. While operating logs showed approximately the same alum dose to all basins, it is likely that the alum feeder to either Basin 3 or 4 was overflowing, resulting in insufficient alum dose for proper coagulation and settling to occur. Plant staff reported that alum feeders occasionally overflow, and that an overflow was observed on December 8, 1993.

Recommended Improvements

Based on our initial findings, the following immediate actions were recommended and have already been implemented by the Washington Aqueduct:

- The operations staff is now routinely monitoring the effluent turbidity of each individual filter. This will provide an early indication of any problems associated with meeting the turbidity performance criteria of the SWTR.
- Continuous recording turbidimeters are being installed on each filter.
- There is now a written procedure that requires filters to be washed whenever the effluent turbidity exceeds 0.3 NTU. This written procedure also sets a maximum time limit between backwashes. Filters unable to

produce a filtered water with a turbidity below 0.3 NTU should be removed from service.

- Streaming current detectors have been installed in each flume downstream of the point of alum addition. These detectors have the ability to alert the operators of any change or interruption in alum feed or of any significant change in raw water quality.
- The application points for the two polymers have been moved resulting in a more effective polymer strategy.

As shown on Figure 1, the filters at the Dalecarlia WTP are capable of producing a filtered water with a turbidity of less than 0.2 NTU, and routinely less than 0.1 NTU, which is significantly better than the minimum SWTR standard of 0.5 NTU.

Provided the plant operating staff continue to follow the above recommendations, the Dalecarlia Plant is capable of consistently meeting the turbidity performance criteria of the Surface Water Treatment Rule.

The Comprehensive Performance Evaluation also identified 26 additional near-term recommendations for further improving performance and administration of the Dalecarlia and McMillan Water Treatment Plants. The Washington Aqueduct has submitted an action plan to USEPA for implementation of these recommendations

Mr. Chairman, that concludes my statement. I would be happy to answer any questions.

Performance Improvements

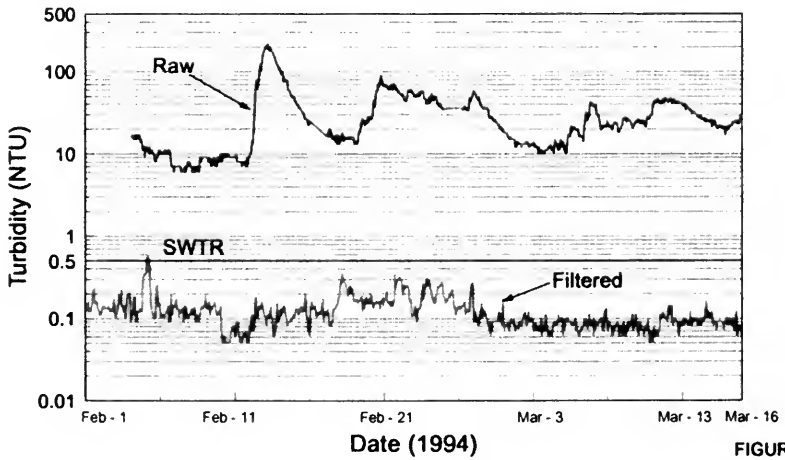
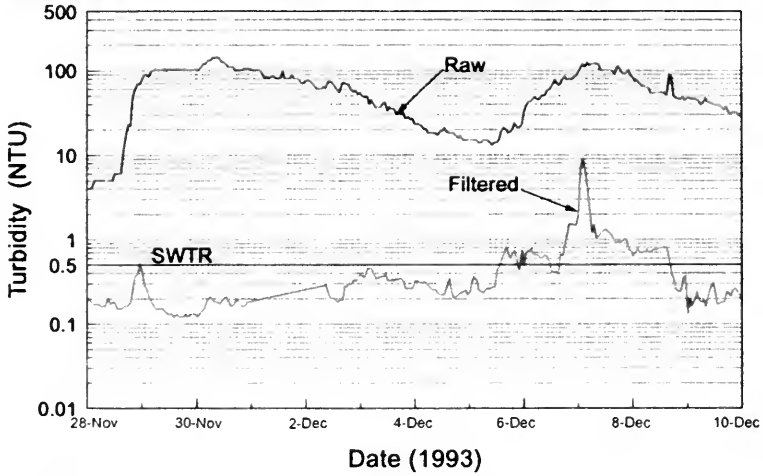


FIGURE 1

Testimony by
Robert R. Perry
Member, Falls Church City Council

June 20, 1994

House of Representatives Subcommittee
on Water Resources and the Environment

Chairman Applegate and members of the subcommittee on Water Resources and the Environment, I am pleased to have the opportunity to provide testimony on behalf of the City of Falls Church, Virginia. I am Robert R. Perry, a member of the City Council, and a member of the Council's Utility committee.

I am an environmental engineer by profession and was employed by the District of Columbia government for eleven years. During a portion of that time I was in charge of the Blue Plains Wastewater Treatment Plant.

Although the population of the City of Falls Church is only 9600, our water system serves a population of 120,000 in the City and in Fairfax County covering an area of 33 square miles.

As difficult as the turbidity problems of this past December were for the City of Falls Church Public Utilities Department, perhaps much good will come from this experience. Clearly the problem emphasized the need for long-range improvements for the Washington Aqueduct facilities at Dalecarlia and at the McMillan water treatment plant. The relationship between the U.S. Army Corps of Engineers and the Falls Church Public Utilities Department has been strengthened and improved as a direct consequence of that incident.

Immediately following the December incident, meetings were held by the Army Corps of Engineers, Washington Aqueduct officials, and the customers of the Aqueduct. The Corps made every effort to brief the customers on the extent of the problems and to involve the customers in developing plans for both the short-term solutions as well as the long-range improvements. It should be noted that problems were identified in several areas, namely, inadequate information and communication, deficiencies in operations and maintenance, and a need for long-range capital improvements. Officials at the Aqueduct and the staff of the Corps were open and frank, freely discussing and explaining the problems and detailing the steps that were taken and actions that were planned to prevent additional incidents.

The most notable consequence of the December turbidity incident has been the genuine effort to improve communications between and among the jurisdictions and the Aqueduct. Not only have specific communication channels been developed among the parties and the Corps, but regional efforts spearheaded by the Metropolitan Washington Council of Governments have led to improved communications among the EPA, the Washington Aqueduct, the various

jurisdictions and its Aqueduct customers. Having these communication channels in place should reduce the considerable problems that we experienced last December with misinformation, conflicting information, and delays in communication.

As part of the direct efforts to improve communications a Memorandum of Understanding has been drafted that establishes the guidelines and channels by which the Corps involves its customers in developing both its short and long range capital improvements programs. This Memorandum of Understanding establishes three committees that will meet periodically to review and discuss both the current and future capital concerns of the Aqueduct. These committees are the Executive Level Committee, a Budget Sub-Committee, and a Technical Sub-Committee. By establishing these committees, the Corps is better prepared to discuss in more detail those items which are pertinent to the particular committee. In the past only one group was convened once a year which severely limited the scope of discussions.

An example of how the various committees are functioning is illustrated by the method the Corps used to present the Malcolm Pirnie report to its customers. The Malcolm Pirnie report was presented to representatives of the various jurisdictions both on an executive level as well as on a technical level. This allowed a legislative and executive overview of the report to be presented to the management and political representatives outlining the capital plan and the proposed cost implications. A more detailed review of both the Malcolm Pirnie report as well as the Corp's own capital plan and the Corp's analysis of the Malcolm Pirnie report was presented to the technical subcommittee.

The most significant development since the December incident is the awareness of the public of the importance of long-range capital improvements for these facilities. It has also become painfully aware to the public that the financial implications of these improvements are immense. As evidenced by the legislation currently being considered by the Congress, financing these improvements may have a dramatic impact on water rates for the participating jurisdictions. It is imperative that a funding mechanism be provided that allows for the proper amortization of these capital improvements over 20 to 30 years instead of the only currently available option of "pay-as-you-go".

In conclusion, let us hope that the experiences of last December, and the increased awareness of the need for long-range planning, along with the improved communication channels and information sharing that are currently in place, will eliminate the possibility of future incidents. We would also encourage each of you to support the legislative efforts of Senator Warner and Congressman Moran in providing a funding mechanism to allow the Aqueduct to proceed with its capital needs with the availability of funds to be amortized over time.

Testimony delivered by Mary Margaret Whipple
 Chairman, Arlington County Board
 before the Subcommittee on Water Resources and Environment,
 Committee on Public Works and Transportation,
 U.S. House of Representatives,
 Monday, June 20, 1994

Chairman Applegate, Congresswoman Norton, Congresswoman Byrne, Congressman Gilchrest, other distinguished Members of the Subcommittee, and Congressman Moran: six months ago, this subcommittee held its first hearing on the Dalecarlia "boil water" incident. Today, we are gathered to discuss those actions that have been taken by the House of Representatives, the Corps of Engineers and the user jurisdictions since the December "boil water" incident.

The most important issue to Arlington County in the aftermath of the "boil water" incident is to ensure that water quality standards are met and that public health is protected in the future. The several actions that have been taken since last year's hearing to address these concerns show significant promise in the effort to improve our region's approach to clean water production.

Beginning in February, the Corps of Engineers held a series of meetings with representatives from the District of Columbia, Arlington County and the City of Falls Church to review the events leading up to the "boil water" incident. These meetings led to the establishment of a mechanism for consultation between user jurisdictions and the Corps which will provide for greater interplay on operational, budgetary, and rate issues.

Concurrent with this process, the engineering firm of Malcolm Pirnie was employed by the Corps of Engineers to develop a conceptual plan for modernization of the Dalecarlia and McMillan treatment plants. Their report, which was released in March, cited operator error and unspecified procedures as major factors contributing to last December's emergency. In addition, the consulting firm recommended substantial capital improvements that will be required at both facilities during the next ten years. Following its investigation of the incident, the Environmental Protection Agency reached similar conclusions to Malcolm Pirnie, citing operator error and capital financing limitations as contributors to the events that led to the "boil water" incident.

The Army Corps of Engineers has estimated that capital improvement needs will approach \$100 million over the next five years. These improvements will be necessary to modernize operating procedures and enable the plant to meet expected changes in national environmental standards set by the EPA. The cost of these improvements must be borne by water customers in the Washington area.

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Although the Corps' Dalecarlia and McMillan facilities provide water services much like any other utility company, the Corps does not have the ability to borrow to finance the cost of capital improvements to the system. Most utilities have the ability to issue bonds or borrow from other sources to amortize capital costs over a project's useful life. However, the Corps lost the ability to finance its capital needs in 1985, when the District gained the authority to issue bonds directly to the public capital markets, rather than through the U.S. Treasury. Consequently, the Corps lost its historic ability to borrow from the Treasury for the Corps-owned-and-operated Dalecarlia and McMillan plants.

When my County Board colleague, James B. Hunter III, testified last December, he made a vivid analogy between the Corps' inability to borrow to finance needed capital improvements and building a toll road where the drivers are required to pay all of the project's costs during the first year of operation. Under the current capital arrangement, water customers served by the Corps of Engineers must finance for capital requirements on a pay-as-you-go basis. This could result in an intolerable burden on Arlington citizens and businesses.

It has become clear to us that legislation is needed to correct this problem and enable the Corps' water production facilities to modernize with the assurance that adequate funding will be available. Over the past several months, we have worked closely with our Congressman, Jim Moran, and our senior Senator, John Warner, to introduce legislation which would provide the Corps of Engineers with the ability to finance Dalecarlia and McMillan capital needs through the Federal Financing Bank. Through their valiant efforts, the financing language has been attached to the FY 1995 D.C. Appropriations bill, which is currently pending in the House Appropriations Committee, and as an authorization to the Safe Drinking Water Act, which was passed by the Senate on May 19.

Without this legislation, the Corps will be forced to charge its water customers for the estimated \$100 million in capital costs over the next five years, rather than amortizing the cost over the useful life of the improvements. Local governments do not have the ability to pay these costs up front. The ultimate solution to this problem must be to restore capital financing authority to the Corps of Engineers. Without the availability of reasonable utility capital financing tools, the entire region runs the risk of future water processing problems at Dalecarlia and McMillan, with the potential public health after-effects having an immediate impact on us all.

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Mr. Chairman, this concludes my testimony. At this time, I would like to convey my appreciation to Congressman Moran, Senator Warner and Senator Robb for their legislative efforts to address the Dalecarlia and McMillan capital financing issue. In addition, I would like to thank you, Congresswomen Norton and Byrne, and the distinguished members of this subcommittee for your determined efforts to keep this important public health matter on the legislative agenda.



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